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ALUMINUM POISONING

BY

DR. CHARLES T. BETTS

Member of the United States Health League. "Fellow" of the American Association of the Medico-Physical Research Society. Author of "An Opinion Upon Aluminum" and many papers pertaining to aluminum poisoning, published throughout the world.

There is no intent on the author's part to copyright any or all of the testimony or evidence herein quoted, which was given at the hearings in Docket 540, Federal Trade Commission, Washington, D. C.

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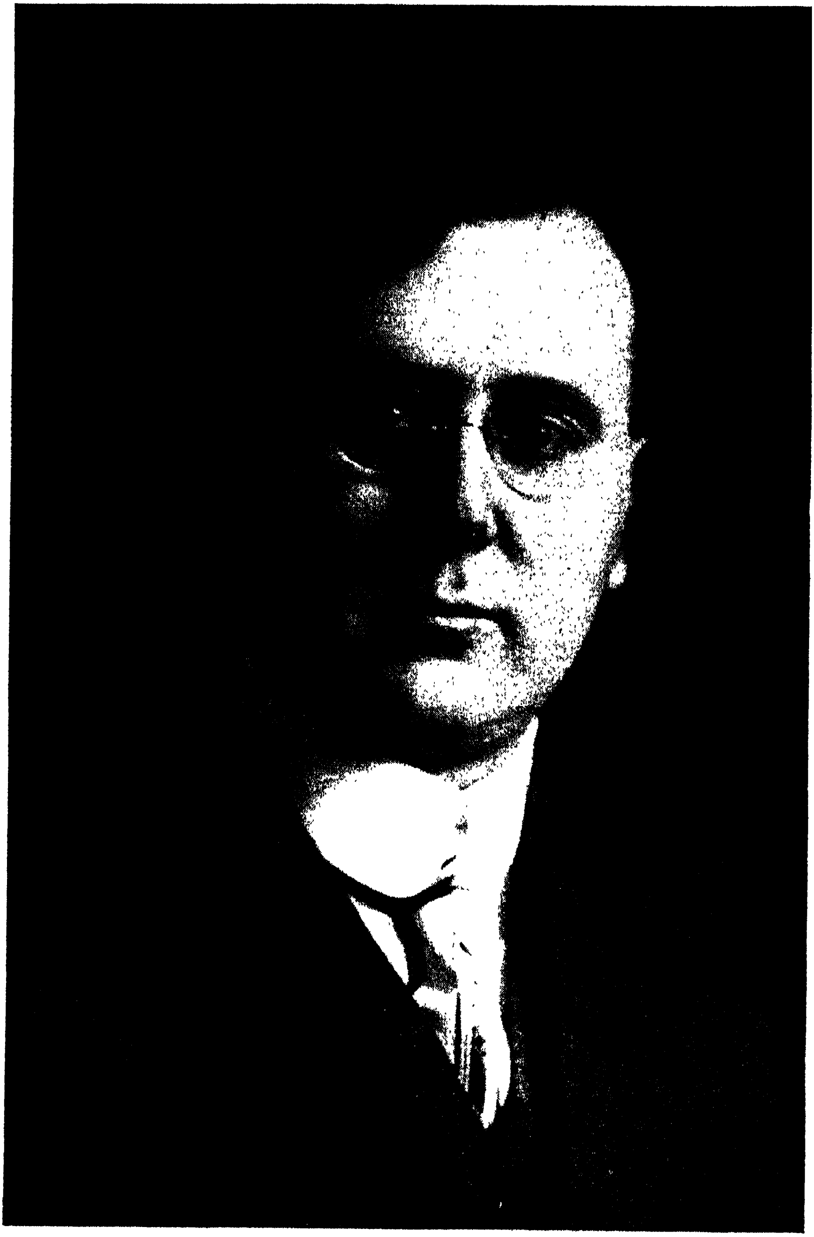
OF AMERICA

RESEARCH PUBLISHING COMPANY,

320 SUPERIOR STREET, TOLEDO, OHIO

[redacted]
BY
CHAS. T. BETTS

Second Edition



DR. CHARLES T. BETTS

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Cause of Cancer Revealed

by

Dr. James B. Murphy

of

Rockefeller Institute, New York

July 28, 1928

Also by

Dr. James Ewing, Pathologist

of Cornell University Medical School,

New York, September 23, 1926

and

Dr. Charles Truax Betts

Toledo, Ohio,

December 13th, 1925.

XIII.

ACCORDING to the experiences and observations of the writer, metal poisoning has been noticed to cause gastric diseases, also cancer. However, there is no scientific data from laboratory work to warrant such conclusions, but clinical cases have been under observation for about fourteen years. These clinical poisoning cases were of such great interest that the writer placed his findings in pamphlet form and published same as an "AN OPINION UPON ALUMINUM."

The revelation that nearly all of our scientists were familiar with chemical poisoning by aluminum compounds was of considerable interest. It is evident that the "ethics" of the great medical union have so stood in the path of progress that the findings of many prominent medics have failed to reach the public on account of the charge of "personal exploitation" being made against them.

The writer called various medics to make investigation of his findings, and if they were of merit, to place them before the medical society. When the writer's requests were completely ignored he decided to publish th above named pamphlet pertaining to cancer in October 1926. Even though many thousands of the pamphlet had been sold throughout the world and national and international publication of various scientists' findings regarding cancer being caused by chemical poisons had been made, it was reported in The Toledo Times, July 30, 1928, that Dr. James Murphy, Associate in The Rockefeller Institute of New York, announced that cancer "was induced by a chemically caused ferment," in other words, by chemical protoplasmic poisons.

The following article gives the reader the information how the medical union can suddenly awake to a "tremendous revelation" when one speaks who is authority. Dr. Murphy is undoubtedly correct, if he is properly quoted in the following article regarding his recent discovery, which he gave before the medical representatives of twenty-two nations assmbled in an international convention in London, England, July 28, 1928. This article has been universally published throughout the world.

XVI.

TOLEDO DAILY TIMES, TOLEDO, O., JULY 30, 1928

"MURPHY CANCER FINDINGS STIR ENTIRE MEDIC WORLD

New York, July 29.—Indicating the extreme importance and significance of the announcement of Dr. James B. Murphy, associate of the *Rockefeller Institute for Medical Research*, before the International Cancer conference at London, that cancer is induced by a *chemically caused ferment* and *not* by a *virus*, the entire medical profession is in a furor.

A canvass among the highest of available authorities shows the majority of physicians and surgeons hesitate to characterize Dr. Murphy's findings, since their information thus far is only fragmentary. Dr. Murphy admitted that his new postulate *completely upset all previous work on the virus theory.*

Dr. D. B. Armstrong of the Metropolitan Life Insurance Co., said of Dr. Murphy's announcement:

"If Dr. Murphy's statement is a fact, and he has not been misquoted, there is no doubt that the many ideas respecting the inception of cancer will have to be cast aside. In such case all concentration in research work must be leveled at the Murphy theory, and his announcement is a *tremendous revelation.*"

Dr. Murphy's research work, which has covered a long period, has been known in New York only to a few immediate associates and co-workers, it was learned through the Rockefeller Institute for Medical Research. The public was assured that Dr. Murphy is not the type of man to reveal before the medical representatives of 22 nations "any half-baked theories."

"Dr. Murphy is wealthy and known in his profession as one who can afford to be independent. Among his contemporaries he is designated as

> "safe" when he makes a public utterance among physicians and surgeons. His intimates say he is cautious, and that he realizes to a hair the effects of a pronouncement. He is called a stickler for the professional code of ethics which prohibits *individual exploitation.*
>
> His cancer research work for the Rockefeller Institute, it was learned today from an authoritative source, has been done largely at the *Cornell University Medical School in New York* in collaboration with Dr. James Ewing, professor of pathology. His work to date, it was declared, had been thorough and painstaking, and up to a certain point he had proved his basic premises. At the same time it was freely admitted by both Dr. Murphy and associates that much work remains to be done before his findings can be applied to the actual treatment of cancer cases, which are the greatest concern of the entire medical profession."

It is of interest to note that Dr. James Murphy made his discovery that cancer is induced by chemical poisons, for the *Rockefeller Institute, New York,* at the *Cornell Medical University,* in collaboration with Dr. James Ewing, Professor of Pathology in that institution.

The above statement caused the author to investigate the reports of Dr. Ewing's statements and to learn if he ever caused any particular stir among the medical profession. The Doctor gave an address before the American Society for the Control of Cancer at Lake Mohunk, New York, on September 22, 1926. He gave, as a specific cause of cancer "elaborate dental plates." Such plates are made of metals, aluminum, gold, etc. Here metal poisons or irritants are definitely stated as a cause of cancer. Following is a partial report of Dr. Ewing's address, which corroborates Dr. James Murphy's findings on metal poisons.

XVIII.

NEW YORK TIMES, SEPTEMBER 23, 1926

DR. EWING PLEADS AT LAKE MOHUNK FOR WIDER PROGRAM OF PREVENTION HITS HEREDITARY ALARMS

AND OPPOSES THE THEORY THAT THE MALADY IS DUE TO A UNIVERSAL PARASITE

LAKE MOHUNK, N. Y., Sept. 22.—Overemphasis on hereditary tendency toward cancer and ill-grounded announcements of the discoveries of alleged cancer-causing organisms have retarded the course of cancer prevention and cancer control, according to Dr. James Ewing of New York, who addressed the conference of cancer specialists meeting here at the call of the American Society for the Control of Cancer.

Many cancers are the result of *known irritations and are preventable,* said Dr. Ewing.

"Cancers of the lip, mouth tongue and tonsil," he added, "are due mainly to broken or sharp-edged and uneven teeth or to tobacco. Gastric cancer is generally traced to abuse of the stomach. Early and abrupt weaning is a frequent cause of mammary cancer, although these and other cancers are the result of known causes and can be prevented.

"It appears that the human race has a general susceptibility to the disease, which, however, rarely expresses itself unless etxraneous exciting factors are brought into action, while the hereditary tendency may be present to an extreme degree without result, unless some of these factors are at work. Nevertheless, I do not believe that heredity can be dismissed from consideration in the origin of cancer."

OPPOSES PARASITIC THEORY

"Another far more serious is the widespread assumption of the parasitic theory of the origin of cancer. If cancer is due to the action of an unknown, microscopic, perhaps ultramicroscopic uni-

versal parasite, then effectual prevention must wait upon its discovery.

"At the present day *I have no hesitation in committing myself without reservation against this theory.* With most general pathologists, I regard it as compatible with the known facts about cancer. The assumption of a universal parasite can only be held by those who assume in addition that cancer is a single disease, comparable to tuberculosis. This assumption appears to be untenable. Cancer is not a single pathological entity, but a *great group of diseases of various origin and course.*" After a discussion of the various types of cancer Dr. Ewing continued:

"If there were less anticipation of the imminent discovery of the universal cancer parasite, fewer announcements of its demonstration and more recognition of the specific exciting factors of cancer the cause of cancer control would be benefited.

"Finally the chief difficulty in arousing interest in the prevention of cancer is found in the necessary absence of immediate tangible results. Since the major forms of cancer are largely the result of human habits and bad habits, a certain intelligent reformation of the habits of the race must be accomplished before cancer prevention can show very tangible results. There is all the more need of approaching the subject with a sane systematic program."

"Among *specific causes of cancer,* Dr. Ewing mentioned moles of certain types, *elaborate dental plates with various metallic alloys* and the use and especially the abuse of tobacco. He said that no effective antiseptic for the mouth had been discovered, and recommended gargling with plain soap and water."

"However much or little cancer prevention may accomplish, it appears more and more evident that early diagnosis alone is not capable of accomplishing the desired reduction in the death rate. Every experienced observer knows that the patient coming with an early diagnosis all to often fails com-

pletely of a cure. The list of cancers curable from their first recognizable beginnings is a long one. The experience of patients accomplishing a cure of early cancer is generally a severe experience, while the fate of the failures is passed over in silence. The public knows these facts, and therefore any plan of squarely meeting the problem of *cancer control must eventually lean heavily on prevention.*"

The above finding of Dr. Murphy and Dr. Ewing substantiates the author's finding upon *metal aluminum poisoning*, as a cause of cancer. Now that it is definitely determined by our highest known authorities that cancer is caused by *chemical poisons*, it may be of interest to the reader to peruse an article published in a Sunday edition of the leading newspaper of Toledo, Ohio, *Toledo Daily Times*, December 13, 1925, two years and eight months before Dr. James Murphy of the Rockefeller Institute made the declaration to the world that cancer "is induced by a chemically caused ferment."

TOLEDO TIMES, TOLEDO, OHIO,

DECEMBER 13, 1925.

"DON'T COOK IN ALUMINUM—IT SOWS CANCER

GRAVE MALADIES OFTEN CAUSED BY POISON FROM THESE UTENSILS, DR. BETTS DECLARES AFTER EXPERIMENTS.

TRACES DISEASE ORIGIN

DISORDERS, HE AVERS, BEGAN TO GAIN HIGH PREVALENCE WHEN WARES WERE PUT ON MARKET 14 YEARS AGO.

Cancer, nervous indigestion, gastritis and ulcer of the stomach are caused primarily by the use of aluminum utensils for cooking food, according to Dr. Charles T. Betts, Toledo, Ohio, who reached his conclusions after several years' research and experimental work.

"Use of the aluminum utensils in preparing

foods produces a hydroxide of aluminum which becomes mixed with the foodstuffs and is taken into the stomach, resulting in the various stomach ailments now prevalent among Americans,'' he said.

''There was a time a few years ago when the cause of these ailments was attributed to bad teeth and infected tonsils,'' he said. ''This resulted in a teeth-extracting orgy, but the removal of the teeth and tonsils has failed to check the prevalence of these particular stomach ills.''

Dr. Betts said that prior to 1911, when the sale of aluminum became general throughout the country, that there were few cancer cases. ''Since aluminum came into general use in 1911 stomach troubles and ulcer of the stomach have increased in astounding numbers,'' he said. ''In 1915, cancer of the stomach began to add to the death list of this country in an alarming degree, and in 1924 deaths caused by cancer in the United States outnumbered any known disease. It is my opinion that aluminum is the cause of most of it.''

INVESTIGATION PROMPTED BY HIS OWN GASTRITIS

The investigations which have been carried on by Dr. Betts for a number of years were prompted by a case of gastritis and stomach ulcers from which he suffered and which forced him to go west for his health.

It was while in Manitou, Colorado, that he made the interesting discovery that the aluminum utensils might be the cause of his trouble. His initial experiments showed that soda water was effervescent when put in an aluminum cup, but that it had none in a glass.

He returned home, discontinued the use of aluminum ware, and in six weeks his stomach trouble disappeared. Convinced that his experiment must have some merit, he decided to make further investigations, and started out to discover what effect other salts had upon aluminum, especially salts contained in food stuffs, and also what

effect other chemicals would have upon aluminum.

One of his early experiments was made with an operating lance with a handle made of aluminum. It proved that the aluminum would come off. His experiments with various aluminum cooking utensils also demonstrated that the utensils would constantly give off the aluminum hydroxide.

BOILED WATER AS FIRST EXPERIMENT

Speaking of some of his experiments, Dr. Betts said: "I boiled plain city water 15 minutes in an aluminum receptacle and placed it in a glass bottle. This water showed a cloudy condition and I found the precipitate to be aluminum hydroxide. I also boiled plain city water in an enamel receptacle with the result that when the water was boiled 15 minutes and placed in a glass bottle, the water was clean. This experiment can be made by anyone by placing the waters in glass containers so the difference can be seen."

He also made an experiment with an electric water heater, which was made with two positive and two negative electrodes, covered with an aluminum cylinder.

"I placed the heater in an ordinary two-quart jar, filled with city water and applied the electric current for 15 minutes. A considerable amount of aluminum hydroxide was produced. I then applied the electricity for a half hour and double the amount of aluminum hydroxide was produced. Heated for an hour the jar was filled with it to overflowing," he said. "This experiment proves that the longer you boil anything in aluminum the more of it comes off. Hydroxide of aluminum is what you eat with your food when aluminum cooking utensils are used, or if drinks are made in percolators made entirely of, or the parts of which are made of aluminum." Dr. Betts said that since he first made his discovery several years ago that he has examined hundreds of persons, who were suffering from various stomach ailments, and that

all of them who followed his remedy of discarding the aluminum utensils got well in from four to six weeks.

"Notice is given almost every day from doctors to extract all the teeth, good and bad, of their patients," he said. "Invariably I discover that they are suffering from some sort of stomach trouble and I tell them to quit using aluminum for cooking purposes and show them the results of my experiments. After several weeks the teeth are saved and the various diseases disappear."

"It is my opinion that if anyone having stomach trouble, except where cancer is already present, will stop the use of aluminum for six weeks, that he or she will get well." Dr. Betts cited a case of a woman who had cancer of the lip and who had it removed. Later it reappeared and her physician advised that her teeth be removed. Examination revealed that she was using an aluminum plate in her mouth. Dr. Betts suggested that this only be removed and the cancer be eliminated again by the surgeon. This was done and the cancer has never reappeared and the woman's teeth were saved. Dr. Betts' experiments have attracted considerable attention among medical men and he has been requested to prepare an article on his contention for a national publication."

THE TEST

Place ordinary faucet or drinking water in an aluminum dish. Bring to the boiling point and keep it at that temperature for thirty minutes. Pour the water into a clean glass jar and allow it to stand until cold. The aluminum hydroxide precipitate can then be seen with the naked eye—in the bottom of the receptacle.

To prove the above statement, repeat the boiling test in glass or enamel ware and no aluminum hydroxide precipitate will be seen in the contents of the glass jar.

C. T. B.

UNITED STATES GOVERNMENT DEMANDS SILENCE

THE FEDERAL GOVERNMENT DEMANDS SECRECY OR SILENCE UPON THE ALUMINUM QUESTION.

OUR Federal officers are men who receive their salaries or support from the general funds from the United States Treasury, to which all citizens of this country, who pay Federal taxes, contribute. The officers of the Federal Trade Commission constitute a Federal body for the purpose of preventing improper trade practices, or— in other words, persons or organizations operating an extensive business, over a number of states, can appeal to the Commission, to prevent a competing organization, supplying goods used for similar purposes, from using improper language or other means to damage their business.

It is the writer's belief that all testimony and evidence presented before this Federal body, as well as the examiner's official reports or documents rendered by the staff of examiners, are matters of public record and available to all our citizens, after the cases are dismissed. It would be a strange law indeed, which would provide that all the official findings and reports upon the findings in Federal cases would be strictly "confidential documents" only to the Commissioners and at the same time, the public would be compelled to pay their salaries from our treasury.

The author believes that the official reports of our Federal officers belong to the public and can be quoted or published by anyone who is not engaged in trade whereby the improper trade act would apply. The author is entirely free from commercial or financial connection in the manufacture of products other than aluminum, therefore he considers it "highly improper" for the Federal Trade Commission to make the demand of

secrecy, upon the publishing of Commissioner Averill's report in Docket 540.

The following correspondence was a result of the author's notice that Edward M. Averill would be quoted in this volume. His report, Docket 540, which the author desired to quote, is of great interest to every citizen of our land, yet to publish it after the following quoted demand for secrecy would probably be contempt of court, so it is omitted from this work. To determine the question of publishing legally, would require years, and the suppression of this entire work probably would be made by the government in the meantime. The writer has not learned who it was that implored the Commission's aid to take this action. It may be possible that there are persons in America who do not want the public to know what our Federal officer's findings are, concerning aluminum poisoning and who would profit financially thereby.

Docket Case No. 540 was before the Federal authorities for a number of years and Examiner Edward M. Averill's report was filed on November 12, 1925. An order of dismissal of the case was issued by the Commission on March 23, 1926. In June, 1928, after more than two years had elapsed since the dismissal of the case, the author of this book desired to publish the official report of the findings of the Commissioner, of which he possessed a transcript copy.

Just before the appearance of the work which contained the above material, the following telegram was received:

> "Attention Federal Trade Commission called to circular announcing contents book proposed to be published by you entitled Aluminum Poisoning and containing quotations from report of Trial Examiner Averill of staff this Commission Stop Be advised Commission regards report Trial Examiner Averill as confidential document and its publication in whole or in part as highly improper stop Commission would appreciate advice your intention this respect.
>
> Otis B. Johnson, Secretary,
> Federal Trade Commission."

XXVII.

The following letter was forwarded at once, to the Commission:

"June 16, 1928.

Honorable Otis B. Johnson, Secretary,
Federal Trade Commission,
Washington, D. C.

My Dear Mr. Johnson:

I received a telegram from your office today, that causes me to understand that the Federal Trade Commission is a secret Federal organization and that the testimonies given before the Trial Examiners, as well as the official reports or documents, are confidential instruments to the Federal Body, after the cases have been dismissed. Is this the intention of the telegram?

I have been to considerable expense in time and money, in preparing the new book—"*Aluminum Poisoning*"—for distribution and will appreciate your advising me, under seal of the Federal Trade Commission, by letter, so that I will know that it (demand for silence) comes from our Federal officers.

Thanking you in advance, for this courtesy, I am,

Very respectfully,

CTB/hh Signed—C. T. Betts.

On June 28, 1928, the following letter was received from the Federal Trade Commission, which caused the writer to eliminate Averill's official report, a public document, from the pages of this book. That this would be necessary or that such a demand should be made by our Federal authorities, in a country of free press and free speech, seems unthinkable.

"June 26, 1928.

Dear Sir:

Your letter of June 16th was received and presented to the Commission, and in reply I was directed to quote my telegram to you under date of June 15th, as follows:

"June 15, 1928.

Charles T. Betts,
Care Research Publishing Company,
320 Superior Street,
Toledo, Ohio.

Attention Federal Trade Commission called to circular announcing contents book proposed to

SEAL FEDERAL TRADE COMMISSION UNITED STATES OF AMERICA

be published by you entitled Aluminum Poisoning and containing quotations from report of Trial Examiner Averill of staff this Commission stop Be advised Commission regards report Trial Examiner Averill as confidential document and its publication in whole or in part as highly improper stop Commission would appreciate advice your intention this respect.

Otis B. Johnson, Secretary,
Federal Trade Commission."

With reference to your statement relative to testimoney and report of the trial examiner, I was directed to say that the testimony of witnesses in formal docket cases and all the evidence introduced in these cases, is a public record, but that it is only the trial examiner's report which is a confidential document.

As suggested in your letter of June 16th, I have affixed the seal of the Federal Trade Commission to this letter, and this seal, according to the statute, shall be judicially noticed.

By direction of the Commission.

Signed—Otis B. Johnson,
Secretary.

Dr. C. T. Betts,
c/o Research Publishing Company,
320 Superior Street,
Toledo, Ohio."

The above correspondence shows conclusively that the avenues of public information pertaining to aluminum poisoning are rapidly being closed to our citizens by public officials.

What are our public officials paid for, if not to serve the public? It is the author's opinion that the Federal Trade Commission should concern itself about matters of trade and that they should interfere only with those who are interested in trade relations, and *not to interfere with others who desire to give health truths from whatever source they may be found.*

How the Author Became Interested in Aluminum Poisoning

It may interest the reader to know how the author became interested in aluminum. He had frequently been asked the question—so often, in fact, that a decision was made to write this page.

"In 1913, I was forced to abandon practise on account of illness and was informed at that time that I might possibly continue to live three months. As a last resort, I journeyed to Colorado in search of water, sunshine or something—not knowing what—that might be of benefit to my health. It was while at Manitou (Springs) that a large aluminum drinking cup was purchased for drinking purposes at the "Soda" spring. Each time the cup was filled with the "soda" water, I noticed that the water was effervescent in the aluminum container.

A lady called at the "soda" spring with a one gallon glass jug, which had a very small opening. Interest was at once aroused to see how the water would foam out of this small mouthed jug. To my surprise, not a bubble was in evidence. When the jug was full, she placed the cork and walked away. There was no effervescence noticeable in the glass container.

The "soda" water had an effect on aluminum and apparently none on glass. If aluminum will make gas in a dish when mixed with an alkali and liquid, as is done in the making of foodstuffs with alum baking powder, it seemed possible that it would have the same action in the stomach, with similar chemicals combined. This caused a suspicion that the metal dissolved from aluminum dishes which we used at home and that my illness was due to the ingestion of the metal which came in contact with the alkaline juices of the body.

I returned home, discarded all our aluminum (which included everything in the utensil line) and within eight weeks was able to resume practise and have enjoyed good health ever since, except when I have partaken of

food at banquets, etc., away from home, where it is almost impossible to avoid aluminum compounds in *prepared food* or *food cooked in aluminum cooking utensils.*

It is not my purpose to claim a new discovery, which however, was new to me. It has been known for many years, as shown by scientists herein quoted. According to this sworn testimony, poisoning by aluminum and aluminum compounds has been known by them for twenty-six years. They have also worked, for many years, as individuals, with no concerted action to make them generally known to the public. Individually, they have found that aluminum compounds are poisonous to the human anatomy.

Aluminum hydrate and aluminum compounds are formed when aluminum cooking utensils are used for cooking food or when aluminum baking powders are used for baking purposes.

IT IS MY PURPOSE AND SEEMS TO BE MY DUTY TO MAKE THESE THINGS KNOWN TO THE PUBLIC. APPARENTLY THERE IS NO PLACE IN AMERICA WHERE THEY ARE TAUGHT."

INTRODUCTION

Within the recent eighteen months, many articles have been written pertaining to Dr. Charles T. Betts and his crusade for better National Health. In October, 1926, a pamphlet "*An Opinion Upon Aluminum*" of which Dr. Betts is the author, was published by the Research Publishing Company, Toledo, Ohio. On the 23rd of September the same year, parts of the pamphlet were read before the national body of the Koch Cancer Foundation at Chicago, Illinois, by the author. Within thirty days of the time of the reading, requests for copies of the pamphlet were coming from every section of America, also from many foreign countries. Only five thousand copies were published in the first edition. Physicians and health organizations were ordering them by the hundred within several months. Extensive reviews or comments were made in such publications as "The Journal of the American Medical Association", "Scientific American", "The Digest", "Hygiea", "Correct Eating", "The Journal of the American Association for Medico-Physical Research", "The Health Messenger", "Western Medical Times", "Toledo Daily Times", "Los Angeles Times", "The Equitist", "Los Angeles Illustrated News", "Toledo Labor Leader", "The Truth Teller", "Intelligent Cooperation", "New York Evening Graphic", "The Golden Age", "How To Live", "Physical Culture", "Vegetarian and Fruitarian", and "Health For All", England. Prominent writers as Dr. Morris Fishbein, Dr. Wm. Brady, Milo Hastings, Dr. Rasmus Alsaker, Dr. W. A. Evans, Dr. Lulu Hunt Peters and others, collectively, have syndicated hundreds of articles pertaining to the author and his pamphlet, in medical journals, scientific magazines, newspapers and farm, home and fireside publications. "Correct Eating", New York, carried a nine page article in January, 1928, and "Physical Culture", New York, carried five pages, in June, 1928. This extensive publicity caused the printing of many additional thousands of the pamphlet and

the information contained therein has reached every civilized nation. Articles by the author have been radio broadcasted in Denver, Colorado; San Francisco, California; Boston, Mass., and in such far-away countries as Australia.

This seeming extensive interest in such poison, by the public, inspired Dr. Betts to make further investigation of the record pertaining to the subject, if such might be available, also to learn why general interest was aroused by his pamphlet. Investigation revealed that almost every American scientist was familiar with the subject and this included many of our foremost medical authorities. More than forty of these were called to testify in a single case at Washington, before our Federal officials and that which they testified to under oath, was a matter of public record long before the above mentioned pamphlet was written or that Dr. Betts knew of the existence of the case. Any number of other scientists gave the Doctor much information regarding their findings but all steadfastly refused to make the matter public. This has placed a great handicap upon the compilation of this volume, but Dr. Betts believes, that to the average mind, enough scientific evidence is herein presented, to convince the user that *aluminum should not be used, as now used, in all its inorganic forms in our foods, drinks and medicines.*

The matter of aluminum poisoning has been very carefully guarded from the public. All the evidence in the one case, Docket No. 540, Federal Trade Commission, has been before our public officials for many years. This case was dismissed more than two years ago, yet to the Doctor's knowledge, not one word of the preponderance of the evidence in the case has reached a single citizen of our land from any public official. Instead it is alleged in March, 1928, that a certain man in Washington, D. C., attempted to or did give out information of this nature to the public recently and it is further alleged that he was employed to write the articles by an organization which would profit financially thereby. The provision invoked by the law is a splendid one, in the Doctor's opinion, except where the nation's health is at stake—however, there is no exception, according to law, before

the Federal body and in this case, *suppression of the facts in the articles referred to must be made by our public officials,* if collusion for profit is established as fact.

This has been the law since 1914 in America; only financially disinterested persons can give information, as contained in this book, to our citizens. Probably this explains the exceptional public interest in the pamphlet —"*An Opinion Upon Aluminum,*" by Dr. Betts.

The material in this volume has mostly been gathered by delving into the records, which seems to be too great a task for the average American citizen. To supply that information to those who may desire it, is the purpose of this book.

PART II

THE ALUMINUM OCTOPUS

SINCE 1913, at which time the writer's health began to improve, further investigation became necessary because of the fact that apparent reactions seemed to occur. It was found that the poison was being taken in other forms than that which was dissolved from aluminum kitchen utensils. It was disclosed that aluminum, in its various forms, was used in connection with foods. It was also found that the metal could be employed by chemists, physicians, public health officials, food manufacturers and others, for multitudinous purposes. Even morticians use it for embalming the dismembered parts of the human body when the arterial system cannot be of service in the regular way.

It seems quite unusual that a substance which is used as a mordant in practically all dyes manufactured throughout the world and which is so well adapted for the purpose of embalming the dead, could possibly be used as an ingredient in any food product which is prepared for public sale in any civilized nation. Further investigation disclosed the fact that not only was the substance used in the manufacture of foodstuffs but that it was placed in city drinking water, for the purpose of killing germs or bacteria. Dentists use it for base plate purposes for false teeth. Physicians use it for various purposes. Following are the principal uses to which it is put.

ALUMINUM COMPOUNDS IN CITY DRINKING WATER.

ALUMINUM COMPOUNDS IN MEDICINES.

ALUMINUM COMPOUNDS FROM ALUMINUM WATER PURIFIERS.

ALUMINUM COMPOUNDS IN BAKED GOODS.

ALUMINUM COMPOUNDS IN WHISKIES.

ALUMINUM COMPOUNDS IN BAKING POWDERS.*

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*Refer to page 83.

ALUMINUM COMPOUNDS INJECTED BEFORE MAJOR OPERATIONS.

ALUMINUM COMPOUND FOR BASES FOR FALSE TEETH.

ALUMINUM COMPOUNDS FROM COOKING UTENSILS.

ALUMINUM COMPOUNDS IN CITY DRINKING WATER

Aluminum mixed in proper molecular proportions with sulphuric acid is extensively used as a water clarifying or purifying agent, in many cities of the United States. Of course such small amounts of poison as ingested from drinking a single glassful of such water is supposed to be negligible in effect. This may be true but the continued drinking of aluminized water may have cumulative effects. The writer had no idea that such quantities are used, as are used, by various city water departments. Investigation of the Toledo, Ohio, water supply proved that about 3,000 tons of this mixture are used per annum for the above named purpose. One tablespoonful of sulphuric acid or two ounces of aluminum either administered in a single dose, is sufficient to cause death.

> "Toledo Times, Toledo, Ohio, December 2, 1926.
>
> Expenditures of $55,000 to purchase 2,200 tons of aluminum sulphate for the division of water was approved by council finance committee Wednesday night"

This is an average of twelve pounds per year or one pound per month for every living human being in Toledo, Ohio, and this without any additional amount needed to cover the balance of the year's supply. A compilation showing how much poison of this nature is used by all the cities, large and small, in the United States, would be of interest.

ALUMINUM COMPOUNDS IN MEDICINES

Aluminum hydroxide and alumina waters are widely prescribed for the sick. When a person becomes addicted to a drug habit, the effect which the drugs produce can only be relieved seemingly, by taking another potion of the drug. Anyone who has, at any time, been familiar with the habits of a cocaine or morphine addict can attest to the fact that when he cannot secure more of the drug he usually becomes extremely nervous and lapses into a more pitiable condition. When he takes another dose of the same kind of poison, apparently he is relieved. In fact he is only consuming more poison with its dire result. So with the aluminum drug. When one consumes this drug, an acidosis condition follows, due to its great absorbing power. When the acids of the stomach are continually absorbed by such an element, more and more acid is formed by the body—then to relieve the acidosis condition more aluminum hydroxide or alumina waters are prescribed as a cure, which in fact, like the cocaine drug, seems to give relief to the sufferer. It is the writer's belief that such relief is only temporary, leaving the consumer in a more serious condition than before taking.

In September, 1926, the American Medical Association received a copy of "An Opinion Upon Aluminum" containing the six articles by the author. In the following month (23rd of October) an article appeared in the American Medical Association Journal, written by the editor, Morris Fishbein. The doctor very definitely gave the reader to understand that there was not the slightest scientific evidence whatever, in the contents of the pamphlet, to support its promotion.

Directly after this pamphlet appeared however, considerable evidence upon aluminum poisoning became available to the public. Many or practically all of our scientists were quite familiar with the subject, more than forty of them having testified in a single case before a Federal examiner. This evidence is quoted herein. Many of these men are most likely prominent members of the American Medical Association, of which Dr. Fishbein is one of the official heads. Shortly after his article appear-

ed, the subject of article No. 4 in "An Opinion Upon Aluminum", i. e. "*Aluminum as a Medicine*" was taken up by the "Council on Pharmacy and Chemistry" of the American Medical Association. One of the Council raised the question of the harmful effects (to the human body) of the medicine, aluminum hydroxide, as is made in Europe and sold or prescribed throughout America. The company making the product for the trade was called to produce evidence that the "medicine" did not lead to toxic (poisonous) effects and to give proof to show that the other statements or claims made, in their advertising, were not false. The "council" had made quite an extensive examination regarding its poisonous effects and made certain demands upon the distributors of the poison.

The American Medical Association Council waited a half year for an answer from the distributor of the product. None was forthcoming, therefore the American Medical Association Journal published on June 9, 1928, the report of their chemical laboratories' findings and the medicine, aluminum hydroxide, as distributed, has been rejected by the Council and the report was published for the information of the medical profession.

Now that it is definitely established by the American Medical Association that they object to such a thing as aluminum poisoning or poisonous effects resulting from a medicine made of aluminum hydroxide, also published their objections to the medicine, and that Gould's Medical Dictionary gives "Aluminumosis" as a disease which is contracted by workers in aluminum factories, the author suggests that the "Council" make further examination regarding aluminum hydroxide from aluminum cooking utensils and alum baking powders. Aluminum hydroxide from these sources may be just as poisonous as when taken in powder or tablet form, by medical prescription. The reader is referred to the above named journal for the "council's" full report.

ALUMINUM COMPOUNDS FROM ALUMINUM WATER PURIFIERS

Water purifiers of various makes are manufactured in this country and, the writer is informed, that the American public paid millions of dollars for such instruments in 1926. They are represented to be and are sold as water purifiers. They are especially used or recommended to the sick who have nephritis (kidney disease). The writer has found persons using the instrument for the purpose prescribed, who were not relieved of their condition but were *poisoned instead* by drinking the "purified" water. The "purifiers" are made of aluminum. Large quantities of the metal dissolve from the instrument forming a poisonous aluminum compound which the patient consumes. He is informed that the materials produced which can be seen in the water, are impurities contained therein, before the purifying process began. It is high time, in the writer's opinion, that such objectionable instruments should be prohibited from being sold to the American public.

ALUMINUM COMPOUNDS IN BAKED GOODS

Aluminum compounds are placed in various white flours for bleaching purposes. This material is used by various millers also by bakers, during the mixing process. It is used for the purpose of making better looking products than would otherwise be possible to make and this in turn, for the purpose of a greater sale of such baked goods. A serious poisoning case occurred on January 9th, 1928, at the Army Air Corps Cafeteria, Dayton, Ohio. It was suspected that too much mineral (aluminum) which was put in the dough of which the pies were made, caused the poisoning. More than 200 were stricken with poison. For a report of this case the reader is referred to the Dayton Journal, January 10, 1928. Papers in various localities gave information regarding the poisoning at Dayton, Ohio. Investigation proved that the contamination was by accidental means (probably the baker made the mistake of putting his scoop in the SAS (Sodium Aluminum Sulphate) con-

tainer twice instead of once and failed to mix flour with the lard. This would mean that the aluminum and the lard combined, would make a potent poison, which more than 200 employees ate. Following is the report of the case in the Toledo Times, Toledo, Ohio, of January 11, 1928.

"200 MADE ILL BY EATING PIE.

ARMY AIR EMPLOYEES ARE TREATED AT DAYTON.

Dayton, O., Jan. 9.—An investigation was launched tonight into the sudden illness of 200 civilian employees of the Army Air Corps shortly after the luncheon period at the post cafeteria today. All of those made ill had eaten pie at the luncheon.

After the first effects were noted, a canvass of the post was made and all who had partaken of the suspected food were ordered to the post hospital for treatment.

More than a score of stenographers and typists were taken to their homes later. All were reported to be out of danger tonight.

Foreign substance in the flour used in the pies is believed to have been the cause, since several varieties of pies were affected. A report of a chemical analysis of the dough is expected tomorrow."

No further information could be secured from the authorities or the press.

Another extensive case of suspected pie poisoning which was reported in papers thruout the nation occurred July 16th, 1928, at Boston, Mass. Case reported in The Toledo Blade, Toledo, Ohio, July 18, 1928, as follows:

"200 MADE ILL; PIE IS BLAMED

ONE PLANT IS FORCED TO CLOSE AS EMPLOYEES ARE STRICKEN.

Boston, July 17.—Approximately 75 persons were in hospitals in Somerville, Boston and Med-

ford, as many more had been treated and released and an indeterminate number of others, believed to be several score, were under treatment at home.

STOCKS ARE DESTROYED

Apart from samples retained for investigating authorities the company directed its store managers to destroy every pie.

Physicians treating the victims described the cases as similar in symptoms to ptomaine poisoning. Victims suffered severe cramps and became nauseated, but, as far as could be learned, none was in danger.

Two Somerville hospitals near the Ford plant temporarily resembled overseas base hospitals. As fast as victims were brought in they were placed in cots which filled corridors and even porches. Many arrived in a semi-unconscious condition and others were bordering on collapse.

ALMINUM COMPOUNDS IN WHISKIES

Before 1917 it was an offense in this country for the makers of various brands of whiskey to place alum in their product for the purpose of producing an "aged taste." "Green whiskey" could be sold as "old whiskey" after using alum. After 1918, when whiskey was outlawed, bootleggers resorted to the use of aluminum compounds extensively, for the purpose of ageing whiskey. So this is another form in which the American public consumes many tons of the metal. To produce this ageing effect, an aluminum electric stick is used by bootleggers. For the full description of this process, the writer refers the reader to a bootlegger's confession as published in Liberty Magazine, January 8, 1927. The following clipping received on March 12, 1928, from a nwspaper in Missouri,* perfectly describes the action of the product when consumed, after being aged by alum or by the use of an aluminum electric stick, as stated above. The word—aluminum—was omitted from this article.

"Police discover a plant for ageing whiskey.

*Name of paper was not attached.

An electrical heating device was used to make the whiskey seem "very old, in a few months." Bootleggers have an ageing device that unfortunately works too well. It makes men that drink their product old in a few months, and often dead in a year or two."

ALUMINUM COMPOUNDS INJECTED BEFORE MAJOR OPERATIONS

A barber uses alum to stop the flow of blood when he has nicked his customer. It has also been found by medics and chemists that aluminum compounds can be used to stop the flow of blood, upon the inside of the body, to a large extent, during major operations. The injecting of such compounds usually takes place shortly before the operation. They are widely used and the results are obvious. The action of aluminum on the capillaries of the arterial system is such as to clog them up, causing a more difficult flow of blood, making the operation a very simple affair, which otherwise would be quite a serious operation, from loss of blood. Even though the operation is successful the patient frequently dies. The chemists making the material for the trade advise in their literature that physicians should give the product by mouth because it is liable to cause "shock" when given subcutaneously or intravenously. In other words, embolism may take place (thickening of all the blood.) The writer refers you to a published statement in "*Colloids in Medicine*"—Smith, New York, August, 1922, which is as follows:

> "The positive electric charge of aluminum hydroxide in suspensoid colloidal solution is particularly strong and after intravenous injection increases the ionic *concentration of the blood* so as to produce *shock.*"

ALUMINUM COMPOUND FOR BASES FOR FALSE TEETH

Another very important matter is the making of artificial dentures (false teeth.) Base plates are made of aluminum to support artificial teeth. A case is now un-

der observation, of a patient who wore an aluminum plate eight years before a lesion (sore) appeared on the upper lip. The patient's lip was treated for a period of about two years. Then she was advised to have the remaining teeth extracted. The writer advised removing her aluminum plate, which was done, and substituted a rubber one instead. The surgeon again removed the diseased portion, which caused the loss of most of the upper lip. She has worn a rubber plate for nine years with no recurrence of the malady. Three of such cases in the writer's practise have convinced him that aluminum plates (false teeth) should not be constructed. Aluminum (an acid metal) is in contact with the saliva (an alkaline substance) 24 hours a day.

ALUMINUM COMPOUNDS FROM COOKING UTENSILS

Tests have been made with city waters in every large city in the United States and every one of them prove that aluminum compounds dissolve from aluminum cooking utensils, as photographed in the book, *An Opinion Upon Aluminum*,* except in the following cities—Sacramento, California; Salt Lake City, Utah; and Denver, Colorado, where a lesser amount was shown by the tests and this because snow water from the mountains was used. As further proof of this statement, the writer quotes Dr. A. S. Cushman, Washington, D. C. The doctor made an examination for Good Housekeeping Magazine, which was published by them in March, 1915. He and Dr. Harvey Wiley made a number of tests along this line, with waters from *various sources*. After months of investigation, the following statements were made. Dr. A. S. Cushman writes:

> "The actual loss in weight suffered by the aluminum ware in these experiments as the *average* of a *number of separate tests* was equal to about 30/100 grain of aluminum per pound of acid liquid used and 35/100 of a grain per pound of the salted acid liquid used."

"The alkali liquid caused an attack upon the

*By the author, 1926—Page 148.

aluminum just four times as great as the acid liquid." (1-40/100 grains per pound per hour of cooking.)

Foods, like rolled oats, are often cooked in aluminum double boilers all night, and all fireless cookers, of which the writer knows anything about, are produced for the purpose of cooking foods which are to be left standing in the cookers for an indefinite period of time, until ready to serve. It would be of interest to know if all aluminum fireless cookers should be condemned on this account or if there is a *stated specified time* that foods should be cooked in aluminum. This necessarily would have to be taken into consideration because many authorities state that "it is best not to leave food standing in aluminum ware or any other metal ware after it has been cooked." All aluminum companies' kitchen utensil literature that the writer has read, flatly contradicts these statements regarding foods left standing in aluminum, *after being cooked.*

It seems to the writer that when *prominent authorities* do not agree upon this matter, it might be well to investigate a little further, so the laity (the writer included) will know if food should stand in aluminum ware or if it should not stand in such ware and whether or not the food is really *standing,* past a given time, in the ware while being cooked. Many such questions will soon be asked by the laity and we should be able to answer them, without confusion or hesitation. *They should have the facts.*

Some writers state that no mercury enters the foods we cook so the first illustration in *"An Opinion Upon Aluminum"* has nothing to do with cooking and should not be used as an illustration. The illustration is one which shows that, by placing or rubbing mercury upon an aluminum handle, an amalgam will be produced within a very few minutes, by the union of the aluminum with the mercury. This photograph was used as the first one in the book because it is of first importance. It deals directly with the sick—with physicians—with hospitals. Various aluminum companies are very proud of the fact

and they state in their advertising that numberless hospitals use nothing but aluminum ware. Most hospitals have what they term "hospital routine." This "routine" is practised with or without the physician's consent. Many attendants or nurses give it to all patients unless otherwise instructed. So the reader may fully understand what this means to the patient, the writer will mention a recent case. The patient was presented for a slight operation, which ordinarily required about ten day's stay at the hospital. In this hospital the "routine" was to use calomel (mercury) at regular intervals for the purpose of bowel medication. The patient ate aluminum compounds in the food, which were dissolved from the aluminum kitchen utensils and thus became directly mixed with the mercury, either prescribed by the physician or given under "hospital routine." This patient was detained about three weeks longer than the usual time required and the health condition from poisoning of the gastro-intestinal tract became so pronounced that great fear for his recovery took place. Extra medical counsel was obtained.

It was by accident that the writer overheard the order given to the nurse that this particular patient should have "hospital routine." The writer inquired what that meant, and discovered that calomel (mercury) was the medicine used regularly for the "routine." When this was discontinued, the patient became well, sufficiently so to leave the hospital within six days. *Is it any wonder that we need more hospitals and all the physicians are busy? When mercury, which becomes mixed with the various kinds of aluminum compounds formed from the hospital's aluminum kitchen utensils, is "besmeared" over the inside of the patient's stomach and bowels,* instead of on an operating lance handle as photographed in the book? *And this to happen at a time, of all times, when a person should have care?* The writer wishes to call attention to the fact that mercury (calomel) is extensively prescribed and that aluminum compounds in hospital food do become mixed with it and the patient suffers from the results of such amalgams thus formed internally. The bricks of which your homes are made are composed mostly of aluminum and they almost surround

and keep you comfortable in your homes. The writer believes that when a human being eats the material of which bricks are made (i. e. aluminum) he often feels as if he actually has one in his stomach. The author does not approve of using that organ for brick making or for digesting brick materials.

FOCAL INFECTION THEORY

In 1916 the focal infection theory was given to the world, at the National Medical Convention in Detroit, Michigan. The focal infection theory is that pus from abscessed gums, roots of teeth and tonsils is absorbed by the body and that practically all diseases may be caused by such absorption. Many physicians do not believe that all our teeth should be extracted or that all our tonsils should be removed. However, after ten years of X-raying, extracting of teeth and removing of the tonsils, conditions in health did not improve. Dr. J. P. Buckley of Hollywood, California, believed that we should see some improvement in health conditions from such an extensive extracting orgy, or it was high time that *intelligent men should call a halt.* He challenged Dr. W. A. Price of Cleveland, Ohio, to a debate upon the question. The debate was held in Chicago before one thousand members of the Dental Society, November, 1925. Even to this day the focal infection theory is universally believed in and almost every patient calling for medical assistance must be X-rayed and thousands upon thousands have their teeth and tonsils removed. This has been the practise for twelve years yet *deaths* by cancer have increased steadily, at the rate of 2% per 100,000 per annum and many other diseases accordingly. Stomach, bowel, kidney and heart diseases have greatly increased during the last twenty years.

So that the reader can more fully understand what the public is heir to in regard to disease and treatment now and in the near future, the following editorial is timely and splendidly describes the effects from eating poisons regularly, from the many and various sources mentioned above. *If aluminum compounds are the cause of the diseased condition of our American people, it is*

our duty to act and to correct the evil, at the earliest possible moment.

Taken from the CANTON DAILY NEWS, CANTON, OHIO, FEBRUARY 2, 1928.

"PRICE OF HEALTH.

The department of labor looked into the budgets of twelve hundred American families and found an average expense for medical service of sixty dollars a year. Since the average income of 70 per cent of American families is only about fourteen hundred dollars a year, this average medical bill is a heavy item. It takes about 5 per cent of the family income.

Miss Elizabeth G. Fox of the American Red Cross nursing service estimates America's doctor bill at one million five hundred thousand dollars a day. This represents only a part of the cost of illness. America's five billion dollars' worth of hospitals are operated at a cost of three million dollars a day. Two per cent of the population, on the average, are always incapacitated by illness. Meanwhile more than half the population are suffering from ailments calling for medical attention. This includes those needing repair of teeth and removal of tonsils and adenoids. A majority of these carry their infirmities to their more or less premature graves.

Modern medical science has made it physically possible for all but a small fraction of the population to be healthy. The forefathers endured their aches and pains because no one knew how to remedy them. The ancient rheumatic groaned his way to his grave. The modern rheumatic, most of him, can have the pus factories in teeth, tonsils and sinuses put out of business and be at peace again. He can, that is, if the family purse will permit. He can, if the family purse is totally flat, by humbling himself and hunting a free clinic.

But there remains the great "average" family, with its fourteen hundred dollars a year, not poor

enough to beg, too poor to pay what it seems necessary to charge for the modern medical service which could relieve its ills and put it in the healthy half of the population. It doesn't take an extraordinary amount of dentistry in a family of five to knock out a third of its fourteen hundred dollars. A bad appendix, a goitre needing surgery if the mother is to be kept equal to her task, and a hopeless engulfment in debt ensues.

Cities where the public schools maintain a health inspection find a majority of school children needing attention to teeth, tonsils and other conditions inimical to health and efficiency. Nobody wants his children to grow up to a life of aches, pains and poverty-producing weakness. Why are these needs, then, not attended to. In more cases than one likes to think, the health destroying condition goes unremedied because food must come even before health; and the fourteen hundred dollar family, in many cases, has to choose between the two.

Modern science has made health possible for nearly all. But the cost of that service, to a considerable proportion even in prosperous America, is prohibitive. The equipment for health in hospitals, surgical devices and laboratories is costly and calls for highly skilled operators. Nursing has become a skilled profession and costly to maintain. The health machine is a Rolls-Royce. Only about 20 per cent of the people are able to use it without financial difficulty. All but a few of the people are of flivver income. How are they all to ride?

Wherever you find a social engineer, loathing, as an engineer will, such waste as goes with permitting a citizen to pass a lifetime crippled by preventable ill-health, there you hear that question. How can flivver folk get the benefit of this marvelous Rolls-Royce health machine? Must millions crawl through life for want of an hour's ride now and then in this costly car?

Could a medical Henry Ford do for health what our familiar Henry Ford did for hurry—put it in reach of all? Until Henry Ford came on the

automobile scene, it will be remembered, automobiles for the less affluent 80 per cent of the people were not dreamed of.

A western physician, taking stock of this problem, holds that the public health is heading toward the status now granted to public education. Health, like education, is so much a social necessity, this physician argues, that it is ultimately going to be, like the public schools, free.

Fifteen per cent of all the physicians of America are even now salaried by government or by social agencies and give free service, this physician points out. Institutions for the feeble-minded, the insane, the tuberculous, the veterans of wars, maternity clinics, student health service in public schools, colleges and universities, all reflect a trend in this direction. Overtopping the remedial services of public medicine stands, of course, the ever-growing field of publicly supported preventive medical service.

This method, we are told, permits the "quantity production" economics which placed the automobile in reach of nearly all. Where the physician spends no time waiting for patients, maintains no expensive office, has his patients come in wholesale lots, the cost of service becomes but a fraction of the cost otherwise. One school clinic removes tonsils for ten dollars and makes expenses, the surgeon is well paid, for he can operate on half a dozen or more in a morning.

That is one proposal: Putting the "Rolls-Royce" in reach of all by "public ownership." The organized medical profession itself gives much discussion to the problem. A tendency to put medical charges on a basis of the paying ability of the patient is the most wide-spread answer of the medical profession itself. The popular surgeon will remove a one thousand dollar appendix from Dives and a fifty dollar appendix from Lazarus, all in the same morning, all in the same "Rolls-Royce". What the final answer will be, we make no guess. It is not a guess to say, how-

ever, that in due time humane America will see that none of its children suffer a lack of health from mere inability to buy it."

Organizations are now investigating the financial income of physicians and a general shake-up seems to be due from this situation, the cause of which is shrouded in mystery. Everything pertaining to medicine is mystical. The cause of Goiter is still a mystery. The mystery of focal infection is still with us. The mystery of fee charging is still upon us. It is still a mystery whether or not a man is a physician, with or without whiskers. This question was very ably answered and settled by Dr. C. D. Selby of Toledo, Ohio, before the State Medical Convention, where he was quoted as saying that the patients would know that their physician is a doctor when they receive his bill. The cure of cancer is yet a mystery.

It is hoped by the author that many or all the mysteries pertaining to aluminum poisoning will be cleared in the near future and that if it has anything to do with the great amount of human suffering, the facts will soon be made known and the **"Mask of Mystery" will be Removed.***

*Cause of cancer discovered and announced by Dr. James Murphy of Rockefeller Institute, N. Y., July 28, 1928—Page XVI.

IS ALUMINUM A POISON?

THIS question has been positively answered in the affirmative by many scientific men. If aluminum is a poison it can be harmful to people only if it is ingested,—and no one could be tempted to swallow even a single dose of the salts of aluminum if aware of its poisonous nature. But millions of people daily ingest quantities of this sort of substance not knowing of its presence in their foods or how it got there. So it seems advisable to bring to the attention of my readers the ways in which the compounds of aluminum may enter the foods upon which they live and thus become poisoned, slowly or suddenly, consciously or unconsciously.

No information has so startled the whole public in recent years as the reports of investigators that aluminum cooking utensils have been suspected of causing people who have eaten foods prepared therein to be poisoned. I believe no more important question confronts the public than this: "Are you poisoning yourselves by the use of aluminum cooking ware and of baking powders containing alum (aluminum)?" If so, *why don't you quit it?*

Comparatively few people are intelligent on the subject of what their foods are doing to their health. However, there is a growing interest in this question and the search for truth or dependable knowledge becomes more and more diligent. Many lights and sidelights have been thrown upon the screen; but they have had more to do with specific types or kinds of foods and their general preparation than with their exact composition or the utensils in which they are cooked. Credit should be given to the many honest, competent teachers in the field of nutrition and health for the useful facts they have given to humanity,—often in spite of the *ridicule* and the *discrediting attitude* of *orthodox professionals* who really ought to have been the leaders of thought in the direction

of *exact facts* as to foods and their effects upon human life.

But it seems to have been left for this writer to bring to general public attention the question of aluminum poisoning and to explain wherein it seems to him that the chief danger lies and how to escape it. To this task he has devoted many years of study and experimentation, commencing with a suspicion that the use of aluminum ware in his own home was, to some extent at least, the cause of his own broken health and finding that his abandonment of the use thereof seemed to contribute to his recovery and later abiding good health. Much opposition has arisen to his theory, as might be expected; for huge commercial interests are affected by the opinion of the public in such a matter as this, and persons of *high position* have undertaken—without submitting any convincing *proof*—to induce the public to take none too seriously any such condemnation of utensils so generally used as those made of *alum*inum.

The fact that aluminum ware is used in a great majority of American homes does not at all prove that the public has a favorable opinion, now that the question is raised; for the number of people who have abandoned their whole sets of such ware indicates that they were *victims* of a lack of knowledge of the *effects* of the use thereof, rather than that they had any fixed conviction that there are no possible harmful effects. But the presumption is that only a few users of aluminum ware have really given any serious thought to the matter and that they are innocently employing such ware without having any reason to suspect that it may be unwise to do so. This writer's purpose is mainly to raise the question so that all thoughtful people may get the facts and become qualified to decide safely and wisely with reference to their health security.

For twenty years or more aluminum kitchenware has come into more and more extensive use. Why should it be otherwise? Is it not ideal in many respects? Or would it not be ideal if this question of aluminum poisoning had not arisen? If the use of such ware involves no health danger, then indeed would it not properly be

considered ideal for its purpose? But if it *contaminates* foods or becomes *ingested* in foods cooked in it with *poisonous effects*, a serious problem confronts the user. If any injurius effects upon the foods thus cooked occur; or if the *food values* are reduced or the vitamines *damaged* or *destroyed;* or if no *harm* to the human body results from eating foods thus prepared; or if the color of foods is not changed to indicate *adverse chemical changes* in it; or if there is not in reality *any ingestion* of aluminum metal by reason of cooking in aluminum ware; then this question about possible aluminum poisoning should never have been raised at all. And so, whatever may have been the impression of the average user of aluminum ware; whatever his attitude to the question that is now raised will never be downed until *all of the facts are known by all of the people;* whatever resentment anyone may feel because of the suggestion that he ought to look well into this matter lest he may have made a serious mistake of judgment with reference to the employment of aluminum ware and alum baking powders in his home; the facts ought to be frankly ascertained and action consistent therewith taken. This writer's purpose is not to condemn aluminum, but to *safeguard human health*; and the only way anybody's health can be protected is by avoiding mistakes which cause harm to the body. If the reader will think without prejudice and then act wisely in this as in all matters, affecting health, he will contribute just that much to personal *comfort, success* and *long life* and will do much to *induce others to do the same.*

Aluminum dissolves readily from cooking dishes. To prove this, boil ordinary drinking water in an aluminum dish for half an hour and immediately pour this boiled water into a clear glass container. The aluminum compounds will be clearly visible to the naked eye. Examination of the aluminum dish after the experiment will not disclose any perceptible loss of metal therefrom; but it should be understood that the *activity of the metal* is such that you will see in the glass container about 1000 *times as great volume* of aluminum hydroxide as of the metal lost from the dish in which the water was boiled. It is *in this form* that the metal enters the body with

food and is digested and taken directly into the blood circulation, by absorption. *In this form* also the metal could be taken into the circulation by injection if such form of medication were resorted to before major operations. *In this form* the metal is a *catalyst.* It acts upon all living tissue with which it comes in contact, itself remaining unchanged. The body strives to rid itself of such an element and to throw it into the intestines for elimination. A normally healthy body can thus dispose of much of such poison, but when one is sub-normal and resorts to medication for bowel action, the aluminum poisons are apt to be reabsorbed into the blood and follow the circulation again. This may become a persistent or habitual operation, *causing continual poisoning.*

Cancers and ulcers occur in some and not in other members of the same family, although they claim to eat very much the same foods. Persistent aluminum poisoning may seem to produce these symptoms in certain people of various localities and not in others. Perhaps some resort to cathartics and others do not. It will be found, the author believes, that those most susceptible to aluminum poisoning and who ingest foods containing aluminum will usually be found to be regular *dependents upon cathartics;* and I believe such are particularly subject to physical breakdown of the parts attacked by aluminum. This process or theory is graphically described by Dr. Victor Vaughan. Dr. Vaughan was Dean of the Medical Department of the University of Michigan for thirty years and held the Presidency of the Medical Association for six years. He is recognized as one of the nation's most *prominent medical authorities.*

> "In 1900, *even before Dr. Mallett's work,* I said that aluminum must be absorbed and testifying before a Senate Committee I testified that it would be difficult for all of the alum to escape absorption. My conclusion is that the salts of aluminum are *harmful in the human body.*
>
> * * * * * *
>
> I say, most of these poisons by absorption are carried by the blood and the lymphs to every part of the body or to various parts of the body. It

does not have to go to every part of the body, and they have opprtunity to be brought in contact with all the features of the body: and as I have stated here in this definition, they have their selective action; they will *combine* with certain tissues, other tissues they will *not* combine with. They may *add* something foreign; and they may *tak^ something away; they may mere^ly rearrange tl structure of the living tissue.* By either one these means, they may *harm* the tissue. Then t^ body strives to get rid of these things by elim^ ing them and pouring them back into the ^ tines, and they may then be *reabsoibed agai may go around.*

Q. Now Doctor, in the testimony to whicn have referred as having been given by you *in the year 1900,* before the Senate Committee of manufacturers, at a hearing in Washington, did you come to the conclusion as a result of your studies and experiments up to that time that the *salts of aluminum are harmful in human food?*

A. *That was my conclusion, yes.*

Q. And did you come to the further conclusion that *alum baking powders* were not healthful, and not wholesome when used in the preparation of *human food?*

A. *I did.*"

The Opinion, above quoted, is a description of a cancer forming substance. The Doctor perfectly describes but does not so define it. The reader can judge for himself.

Much investigation has been made by various scientists regarding the action of aluminum compounds upon the digestive tract and it is of great benefit to mankind, in the writer's judgment, that Dr. Harry Gideon Wells, Pathologist of the University of Chicago, explains why some people are sufferers from aluminum compounds while others are not apparently affected by them.

ACTION OF ALUMINUM COMPOUNDS ON CELLS LINING THE DIGESTIVE TRACT

"Aluminum compounds, being protoplasmic poisons, will poison the endothelial cells of the digestive tract (these are the cells which line the digestive tract and come in immediate contact with food and drink.) They not only have the function of lining the tract, but a very important function in protecting the rest of the body. *Poisons of great potency might enter the digestive tract in large quantities and be prevented from causing any harm to remote tissues as long as hese endothelial cells are uninjured, but if injured, this defense is lost.*"

It is the author's belief that ones' vitality is either raised or lowered, according to the health condition of the endothelial cells.

And this is an important question: Are food values destroyed and are foods made injurious by aluminum compounds? It is the writer's opinion that no one should eat foods which have been cooked in aluminum. But this is not alone his opinion, many prominent medical authorities hold similarly. Among these is no less an authority than Dr. Chas. L. Olds, Philadelphia, Pa. He is quoted in "Cancer," 121 East 60 St., New York City, as follows:

* * * * * *

"Another possible source of chronic poisoning is aluminum. Cooking utensils made of this metal are in almost universal use and quantities of baking powder containing salts of aluminum are exposed for sale in our shops. A few months ago we thought that quite a discovery had been made when it was found that all foods *cooked in aluminum receptacles greatly increased the cancer reactions* and even water boiled in an aluminum dish *behaved similarly. All baking powder* containing alum compounds had the *same effect;* they were inimical to the cancer patient.

Perhaps this particular action with respect to cancer has not before been published, but recently

> I have found a small work, *"An Opinion Upon Aluminum"*, by Dr. Charles T. Betts of Toledo, Ohio, that conclusively shows aluminum to be one of the great sources of *chronic poisoning.* Dr. Betts computes that the average person whose food is cooked in aluminum ware, and whose bread is baked with alum baking powder, consumes four to five grains of aluminum salts at each meal, or 12 to 15 grains per day, and this every day in the year. If this is one of the sources of chronic poisoning which is cancer producing, can we wonder that this disease is increasing by leaps and bounds? Can we expect our treatment to be highly effective while *these causes are active? I think not.* The *conclusion* is *obvious."*

Dr. W. A. Dewey, Secretary of the Koch Cancer Foundation, is quoted in the October, 1926, *Koch Cancer Foundation Bulletin,* as follows:

> "The interfering features most commonly met with that obstruct the development of immunity have been discussed previously as Xray, Radium, Metals such as Colloidal Gold, Mercury, Arsenic, etc. An important interfering metallic agency *not hereto* discussed and associated with the diet, is *aluminum.*
>
> * * * * * *
>
> Aluminum is dissolved very readily by distilled water or ordinary water from *aluminum cooking utensils* and in such quantities as cause *interference with recovery.* Foods likewise, when cooked in aluminum ware dissolve out large quantities of aluminum and for this reason it is necessary to *avoid* aluminum dishes and utensils in the preparation of the food for a *cancer patient."*

If food cooked in aluminum ware is made either valueless or capable of causing injury if ingested in the case of a *cancer patient,* how can such food be beneficial to or safe for consumption by a person who *does not* have cancer? If a cancer patient cannot *get well* if he con-

tinues to eat foods cooked in aluminum ware, or foods which otherwise contain inorganic aluminum compounds, *how can a healthy person* hope to keep well if he *persists in consuming* such food?

Scientific records give in detail statements regarding the effects of aluminum compounds on vitamines. The following is the opinion of Dr. Albert P. Matthews, Professor at the College of Medicine, University of Cincinnati.

ACTION OF VITAMINES

* * * * * *

"Probably a more serious result will be that it (aluminum) will unite with various essential constituents of the food present in small quantities, substances called food accessory substances, or vitamines and these substances will be thereby so changed as no longer to exert their usual action on the body.

In animals, and on a restricted diet have barely sufficient of these substances to support the life of its tissues, a very serious condition will be produced in the alimentary canal, owing to the lack of these essential substances."

ACTION ON INTESTINE

"This condition will be very similar to the conditions described by Chittenden and Underhill as a *pelagrous condition.* There will be *hemorrhagic condition of the intestine* with *ulceration of the duodenum and at times of the stomach also.*"

ACTION AFTER ABSORPTION

"The aluminum from such residues after absorption into the blood and lymph will, exert the usual action of aluminum salts *on the tissues and organs of the body, this action being more or less severe depending on the quantity of aluminum absorbed.*

Regardless of absorption, *aluminum can exert*

an irritating action on the mucosa of the gastro-intestinal tract without absorption and in the manner already stated it may exert the deleterious action on the food, so changing its quality as no longer to exert the nourishing effect it would have exerted in the absence of aluminum.''

The scientific side of any question is apt to be given too little attention by the laity. But there is a practical side that is clearly within the capacity of each person to comprehend. Health is a personal or individual matter and depends wholly upon what one does for or to himself in all matters of body-management. One can elect to continue to use aluminum ware and to consume alum baking powders. This is his privilege. One can elect to discontinue their use, too. This may be his duty. It surely is if this writer's opinions are even *approximately correct*. But object lessons are often needed. Often in newspapers are reported cases of group poisonings,—people made desperately ill at banquets, dinner parties, etc. Such reports have come from various parts of the country. Hundreds of persons made violently ill from eating foods most carefully selected and prepared by their own people for some public gathering, turning joy into *shock* and *grief* and *anxiety* and *death*. So often have these events included the preparation in ***aluminum ware*** of the food served that suspicion naturally attaches to this incidental fact. Sometimes the food is merely *stored* for a *long period* in aluminum. Sometimes it is also cooked in aluminum. Occasionally, as in the case reported in the following story printed in the Pittsburgh ''*Sun-Telegraph*'', it may be that *only part* of the food is contaminated by aluminum poison and poisons the rest by mixing with it. Giving account of a very serious and extensive poisoning which occurred at the First Baptist Church at Punxsutawney, Pa., on December 3rd, 1927, the following appeared:*

We may not look for hearty support for anti-aluminum opinions through the press, for aluminum cooking ware and alum baking powders are extensively used,

*Group poisoning cases—Page 130.

advertised and are carried by many stores. Evidence has been plentiful that such observations and experiments as the writer has made and the opinion he has reached on this subject are not welcome in the daily press columns. Pro-aluminum propaganda may be more fortunate in its reception for publication. As an instance of the attitude of one 86 page newspaper, the Managing Editor was removed from his position a few hours after he allowed to be *reported* and *printed* in that newspaper an article on this subject prepared by the writer,—and am informed that he was told frankly that his discharge was for that reason. The writer considered that the dismissal of such a prominent newspaper editor *for such a purpose* was equal to the removal of another prominent newspaper editor—Don Mallett of Canton, Ohio,—by an assassin's bullet, when he *dared to print* what he considered *worthy of public knowledge*. Such acts are, in the author's opinion, direct attempts to strike at the very *foundation* or *basic principles* upon which our Government is founded.

It is estimated that aluminum cooking utensils to the value of two and a half billions of dollars have been purchased in the United States alone. $62,000,000 worth of aluminum baking powders, which contains about 60,000 tons of (metal) aluminum (sulphuric acid) sulphate, is purchased **per annum** for **baking purposes.** If **aluminum** cooking utensils and **aluminum** baking powders are the cause of such **damage** and **misery** and **suffering** and **death** among our people, it seems to the writer that it is high time the public should find it out and adjust their habits and ideas to the facts,—**at whatever seeming sacrifice or cost.**

(All italics mine—Betts.)

Is Sodium Aluminum Sulphate--Alum?

MUCH stress has recently been placed upon the above question by the manufacturers of various baking powders. Makers of Tartrate baking powders claim that *sodium aluminum sulphate* is common *alum*. Manufacturers of *alum baking powders* claim that such products are not made of *alum* but from a substance called *sodium aluminum sulphate*. Alum is claimed to be a corrosive poison by many scientific authorities throughout the world, so a very important question is here raised because Sodium Aluminum Sulphate is extensively used in the manufacture of alum baking powders. And so if Sodium Aluminum Sulphate is *alum* and *alum* is a recognized *corrosive poison,* it is the writer's opinion that some changes should be promptly made in the wording of our pure food laws, in order that the health of the nation may be safeguarded.

The above question was brought before our Federal Trade Commission in a recent case and the Federal Examiner for this particular case heard quite a number of authoritative scientists who gave testimony.

Many scientists have made statements or given opinions that *sodium aluminum sulphate* or *alum* is a powerful poison. It is a poison sufficient to cause death if taken by mouth. It has been stated by Dr. Harry Gideon Wells, Pathologist of the University of Chicago, that:

> "There are cases of record in the literature of death following the taking of one ounce or approximately 30 grams of the drug."

It may be of interest to the reader to know what one of the nation's most prominent medical authorities' opinion is, regarding alum as a poison to the human body. The following was given under oath, by Dr. Victor **Vaughan:**

> "A poison is a substance of a definite chemical

composition, which by virtue of its constitution is capable, when brought in contact with the tissues of the body, of modifying the cellular activity of one or more organs to such an extent as to impair health and possibly to destroy life."

"Practically, alum is the only salt of aluminum from which poisonous effects are likely to result. This is true merely because alum is the only soluble *salt of aluminum that is widely used*. All salts of aluminum are poisonous when injected *subcutaneously or intravenously*. The researches of Siem, confirmed by those of Doelken, have demonstrated that the lesions induced by the subcutaneous administration of salts of aluminum, are extensive and serious. In animals they found the lesions of 'metallic kidney' and fatty changes in the anterior horns of the spinal cord." * * *

"Many poisons, especially those administered by the alimentary canal—and this is true of metallic poisons as well as many others, are absorbed into the circulation. In fact, they must be absorbed before they can act as systemic poisons. Perfectly insoluble substances, of course, would not be absorbed. Even metallic arsenic is not a poison until it is converted into the oxide. Metallic copper is not a poison unless it is finely divided, in which case it may be digested with the gastric juice, and so on." * * *

"The point I want to make is this that if you could prove that every particle, iota, of this substance, (*alum*) administered by mouth, is eliminated by the feces, through the feces, or with the feces, it would not show that it had not poisoned the animal. A man may die from arsenical poison, and after his death no arsenic found in his body. The poisoning is accomplished while this substance is traveling around. Then the tendency of the blood is to eliminate, in part at least, all poisons, into the alimentary canal; that is the way of getting rid of it; and the same thing is true of typhoid bacilli, and of various other poisons."

DEVELOPMENT OF USE OF ALUMINUM COMPOUNDS

Some fifty years ago manufacturers, in their efforts to find a cheap substitute for cream of tartar began to use burnt alum in baking powders. On account of their comparative cheapness and since they were indistinguishable in appearance from cream of tartar baking powders, the alum mixtures were sold in considerable quantities.

Shortly after their introduction, the makers of cream of tartar baking powders began to publish advertisements warning the public against the use of alum. Their statements were supported by the investigations that had been made in England on the adulteration of bread flour with alum, where it was used to conceal inferior grades of flour and to enable bakers to make a better looking bread from low grade flours than would otherwise be possible. Within a few years physiological experiments were undertaken by the most eminent scientists available at that time which confirmed prevailing opinions as to the injurious character of the aluminum compounds introduced into food through the use of the baking powders containing alum. The makers of cream of tartar baking powders continued to publish the results of such experiments and opinions based upon them.

USE OF SODA ALUM COMMENCED

VARIOUS ALUMINUM BAKING POWDER MANUFACTURERS MADE NO PUBLIC STATEMENT ON THE CHANGE OF THE KIND OF ALUM USED.

About 1892, when soda alum (or *sodium aluminum sulphate*, its scientific name, by which many alum using manufacturers prefer to call it) superseded the burnt ammonia and potash alums, manufacturers made no public announcement of that substitution and since then soda alum, so far as is known, has been the only aluminum compound used in baking powders.

ATTITUDE OF FOREIGN COUNTRIES

Although their sale has long been prohibited in *France, England, Belgium, Germany, Switzerland, Brazil, Czech-Slovakia, Hungary* and most other *civilized countries*, the manufacture of baking powders containing alum has rapidly *increased in the United States.* Before the enactment of the first pure food laws, chemical analysis was the method of determining whether or not alum was an ingredient in a baking powder. About 1900, laws were enacted in some States requiring the manufacturer to state on the label the kind of baking powder that was offered for sale and shortly thereafter in certain States manufacturers were required to state the ingredients of their baking powders.

MANUFACTURERS CONCEAL ALUM UNDER SCIENTIFIC NAME

Certain manufacturers of baking powders containing alum sought a means of concealing the presence of alum. They announced that they did not use alum but an entirely different chemical, which they chose to call by its scientific name *sodium aluminum sulphate.* To meet this, Wisconsin and other States required the word "alum" to be used in the ingredient clause on the label when any compound of aluminum was a constituent of the baking powder. In the meantime the Respondent Baking Powder Company in Docket 540 Federal Trade Commission, Washington, D. C., continued to advertise "* * * *Contains no alum—leaves no bitter taste.*"

OBJECTIONS RAISED BY THE MANUFACTURERS OF ALUMINUM BAKING POWDERS

Objecting particularly to the implication of these phrases, manufacturers of baking powders containing *alum* invoked the aid of the *Federal Trade Commission,* urging that the Respondent Baking Powder Company be prohibited from making any reference whatever to the presence or absence of alum in its own product or in the

products of its competitors. Further inquiry into the potential dangers to health in the use of baking powders containing alum was apparently not contemplated or expected. *The manifest purpose of the proceeding against the Respondent Company was the suppression of the fact that sodium aluminum sulphate is*—ALUM.

After hearing more than 175 witnesses and covering a period of about six years' time and securing more than 4000 typewritten pages of testimony, taken at a tremendous cost to all parties concerned, the official report was filed with the Federal Trade Commission and the case was dismissed. Apparently no decision was made by the Federal body upon the Examiner's findings in the case and in the meantime we continue to eat the *poison* in *alum baking powders* at the rate of about 60,000 *tons per annum.* Communities can take action upon such matters. Health is largely a matter under local control. In such Federal cases where tremendous amounts of money are vitally concerned, it seems very difficult, *for some reason the writer does not understand, to secure action for general public benefit.*

The City of Westfield, Mass., solved the problem for its citizens. Other communities can do likewise, in order that their residents may be protected also. The following reprint quotation describes how the City Chemist, Prof. Lewis B. Allyn, attempted to make it possible that foods prepared for public sale in Westfield, should be free from all such objectionable poisons, which the public in general is being so well supplied with.

THE HARTFORD CONNECTICUT TIMES

FEBRUARY 25, 1915

"WHY WESTFIELD OBJECTS TO ALUM IN FOOD PRODUCTS

The famous Westfield Standard was created by Prof. Lewis B. Allyn, member of the Board of Health and Town Chemist of Westfield, Mass. That alum is not a fit ingredient of human food seems undebatable. No less authority than Parke, Davis & Company, one of the largest drug firms

in the country, in their manual of Therapeutics have this to say concerning alum:

> "Powerful astringent (causes animal tissue to contract). Rarely used internally, except in painter's colic."

This substance finds its greatest use as a food adulterant in low grade baking powders, pickles, condiments, etc. It is employed in cheap baking powders to furnish a low cost acid to act on the baking soda, and in pickles and condiments to impart a false appearance of freshness and crispness.

Alum undisputably is of value in relieving painter's colic, but it has no place in foods for human consumption.

Strychnine, for instance, is a tonic in certain cases, but it is not for that reason to be recommended for general use. Physicians may prescribe alum if they choose, but the food manufacturer has no right to dose both sick and well alike.

It should be understood that all of the alum put into a cheap baking powder does not go into the system as alum. It splits with the soda into several compounds: Aluminum hydroxid, sodium sulphate, commonly known as "Glauber's Salts", potassium sulphate and carbon dioxid. This latter is the leavening agent.

"Stop your attacks on alum," says the spokesman of the food adulterators. "You are threatening our great industry."

Most manufacturers of food products who are using alum state the presence of this objectionable drug on the label. You will never find this statement in large type prominently displayed, but in small type on the back of the label, and the only reason it is here at all is because the government demands it.

The man who uses alum in a food product does not proudly boast of it in his advertising. The fact that alum is present is not a thing to boast of—and he knows it.

If alum is a chemical that should be added to food, why not be honest and say so in large type?

To quote one of the most efficient and conscientious of public health officials:

"Alum is recognized as and conceded to be a poisonous substance capable of producing serious and even fatal results when taken into the system. Hence its use in foods for man has been expressly prohibited by many of the governments of Europe, including *Great Britain, France, Germany, Italy, Belgium, Roumania* and several of the *Swiss Cantons.*"

Westfield objects to the use of alum in all food products whether baking powder, pickles or condiments, for the following reasons:

"This poisonous, irritating, astringent drug is either directly injurious or it may split up into objectionable compounds.

"No salt of aluminum is a food product in itself.

"It is not a natural constituent of the human body.

"So far as is known, no public health official of standing endorses alum as a food ingredient."

Westfield, the Pure Food Town, believes, in the presence of such a mass of direct evidence concerning the objectionable qualities of the drug, that alum treated foods should be entirely avoided.

Alum belongs in the front rank of such objectionable chemicals as *benzoate of soda, boric acid, salicylic acid, sulphuric acid* and *formaldehyde.*

Look for the small type on the label.

Here is the food standard of the Pure Food Town of Westfield, Mass.

More exacting than Government Food Standards or State Food Laws:

"Foods shall not contain added *alum, copper, formaldehyde, sulphurous acid* or its salts, *boric acid* or its salts, *benzoic acid* or its salts, *formic acid* or its salts, *hydrofluoric acid* or its salts.

> *salicylic acid* or its salts, nor any other noncondimental preservative. "Foods shall not be colored with *coal tar dyes,* nor with poisonous *vegetable colors,* nor be contaminated with inert fillers, nor shall any substance be taken therefrom or added thereto so as to injuriously affect their quality, strength or purity.
>
> "Foods shall be packed and sold under sanitary conditions and package goods shall bear no *dishonest label* nor labels bearing any *extravagant or obscure* statements."
>
> For protection to yourself and your family, see that you buy only foods and beverages that are certified under "The Westfield Standard."
>
> You will then be buying only products of high food value—wholesome and pure."

The above "Westfield Standard" may be considered quite drastic by the average layman but when an examination into scientific works upon the subject is made, it seems incredible to find that it is possible for such poisons to be sold in any community or that they can be placed in our shops for public sale as a human
duct. The usual plea is that the amounts are s
that they do little or no damage. The writer's
is that small amounts of poison have cumulative
upon the adult body and immedi effects up
dren, who do not have the physica
such ingested substances.

Following is Dr. H. A. McGuigan
ing *alum,* found in his scientific text boo
his views. These views corroborate the
ions of many scientists, including Prof. Al
as quoted above.

> "Aluminum is classed with the heavy
> which exert their action in the form of so
> salts in two ways,
>
> (a) *Local action,* due to combinations with proteins which classify aluminum,
>
> With *ferric chloride as styptic.*
>
> To the *salts of lead, bismuth, zinc* and *mercury as astringent.*

(b) *General action* as *absorption* in which there is little difference in the metals. Local absorption exerting a constricting action on the local vessels.''

There are many ways in which we are liable to ingest alum in our foods, even without our knowledge—for instance: Aluminum dissolves in the hydroxide form from ordinary *alum*inum cooking utensils. When salt (chloride of sodium) or ordinary cooking soda is used to season foods cooked therein, they join or become mixed with the hydroxide from the aluminum dish and form alum or various kinds of alum, according to the foods cooked. Meats contain alkalies—therefore, when meats are cooked in aluminum vessels, alum is produced without the use of table salt or soda. For this reason it is the writer's belief that aluminum should not be used for cooking purposes. About 3000 tons of alum are used in Toledo, Ohio, city drinking water per annum. Water ''purifiers'' which produce *alum* in the purified water, are sold to the American public. Alum or aluminum compounds are also widely prescribed for the sick.

For many years there has been no doubt in the writer's mind that alum is not a fit chemical to ingest in foods. After having the privilege of reviewing the testimony quoted in this book, he has no reason whatever to change his mind regarding it, in fact his opinions have been greatly strengthened thereby. It seems unusual that the facts pertaining to aluminum compound poisoning should remain a closed matter to the public. It has been more than two years since all the testimony or statements in Docket Case No. 540, Federal Trade Commission, Washington, D. C., have been reported to the Federal authorities, by the official Examiner, Edward M. Averill, yet no action has been taken by any governmental authority to **disseminate such information among our citizens,** to my knowledge. **In the name of humanity, how can this be? Is this a government of the people, by the people and for the people, or is it a government of the money, by the money and for the money?***

(Italics mine—Betts.)

*Read ''An Explanation'', Page XXV.

ALUM-INA

ALUM—DISCOVERY OF ALUMINUM—BAUXITE—ALUMINUM—ALUMINUM SULPHATE—AND A SALT.

WHAT ARE ALUMINUM UTENSILS MANUFACTURED OF?

FOR the reader's information the writer deems this work of sufficient importance to set forth here, the exact language of unquestioned authorities regarding the definition of the word—*alum*—the substance we ingest when we consume foods or drinks prepared in *alum*inum cooking dishes. *Alum*inum baking powders, city drinking water, illicit whiskies and *alum*inized medicines contain this substance.

The English word "alum" is derived from the Latin word "alumen", the Greek equivalent of which seems to have been "stypteria", meaning astringent. The ancients applied this term to a number of substances of astringent taste,—Chauser used the word "alum" about 1386. Potash alum and ammonia alum have been known from early times, both have been made from alum shale, clay, bauxite and other aluminum materials, both have been used in medicine, and in tanning, dyeing, paper sizing and water purification. As chemistry developed, other salts were discovered of analogous composition and same crystal form in which other elements replaced the potassium or ammonium and "alum" was applied as a generic term to the whole series. Alum: Any of a series of double sulphates isomorphous with common alum, in which the potassium may be replaced by sodium, or ammonium.

The only forms of aluminum compounds used in baking powder have been Potassium Aluminum Sulphate, Ammonium Aluminum Sulphate, and Sodium

Aluminum Sulphate. When used in baking powder it is always in its anhydrous form. Baking powders containing etiher Potassium Aluminum Sulphate, Ammonium Aluminum Sulphate or Sodium Aluminum Sulphate have been from the earliest days of the industry classified by *Government Boards, Government Health Officers, Government Bulletins,* whether Federal or State, *alum baking powder.* The laws of the States, where they have any laws on this subject, and the regulations in the various states issued in accordance with its laws, have classified baking powder using SAS as its acid ingredient as *alum baking powder.* The term "alum" is the common name that should be used to designate either sodium or potassium alum or mixtures of aluminum sulphate and sodium or potassium sulphate or any other aluminum compound.

WEBSTER'S NEW INTERNATIONAL DICTIONARY, 1913 (Reprint 1922).

> "Alum. A name given to a remarkable series of double salts, of which potash alum may be taken as the type. . . We can replace the . . . potash by soda . . . The following is a list of alums actually known to chemists:
>
> 1. Ordinary potash alum.
> 2. Soda alum.
> 3. Ammonia alum.
> 4. Rubidium alum".
>
> (Nine others are mentioned).

THE AMERICAN CYCLOPEDIA, 1873 EDITION (APPLETON.)

> "In commerce, three forms of alum are usually met with, those of ammonium, potassium and sodium (common alums), which are used as astringents in medicine, as mordants in dyeing, and in the manufacture of baking powder. And anhydrous alum, sodium and aluminum sulphate is chiefly used in the manufacture of alum baking powders."

STANDARD DICTIONARY OF ENGLISH LANGUAGE, 1895. ALSO EDITIONS 1913 AND 1920.

"Alum is a double salt, etc. . . The principal alums of commerce contain potassium, ammonium, or sodium, and the sesquioxide of aluminum. . . The ammonium alum is used in the manufacture of baking powder."

THE NEW INTERNATIONAL ENCYCLOPEDIA, 1902.

Common alum was regarded as late as the 18th Century essentially as "aluminum sulphate".

"Alum is a neutral salt, consisting of sulphuric acid combined with illuminous earth or fine clay and merits of consequence, the name of *aluminum sulphate*. . . . aluminum sulphate, or alum, at first affects the organs with a sweetish taste and is afterwards felt to be strongly astringent."

FOURCROY ELEMENTS OF CHEMISTRY AND NATURAL HISTORY. LONDON, 1796.

"Sodium aluminum sulphate is anhydrous soda alum, has the same appearance and taste as exciccated (burnt) potash alum or ammonia alum and there *are no substantial differences in chemical or physiological action between any of the three forms of alum used in baking powders (potash, ammonium and sodium alum)*. All three exhibit the same *kind* of reactions in solution although they may differ slightly because of the small variation in the aluminum content. When used as the sole acid reacting ingredient in baking powder the aluminum reaction product in each case is aluminum hydroxide. In addition to carbon dioxide the other reaction products are, respectively:

—Sodium Sulphate only in the case of soda alum

—Sodium Sulphate and some Potassium Sulphate in the case of potash alum
—Sodium Sulphate and some Ammonium Sulphate in the case of ammonia alum.
all forms of alum used in baking powder contains aluminum compounds."

The writer could here refer to any number of bulletins published for the health protection of the American people, but space forbids. However, the folowing five named bulletins, if referred to, will give the reader some idea as to what our baking powders are manufactured of.

11th Annual Report. State Food Commission, Illinois, 1910.

Annual Report. Illinois State Food Commission 1911-1912.

U. S. Dept. Agr. Bul. No. 13, 1889—"Classification of baking powders."

N. C. Agr. Exp. Sta. Bul. No. 155, 1898—Subject: Baking Powders.

Baking Powder Rulings, July 23, 1913—Special Bulletin, Food Department, N. D.—E. F. Ladd, Commissioner.

DISCOVERY OF ALUMINUM

One hundred years ago, in 1828, a German by the name of Herr Wohler discovered aluminum. Very small amounts of the metal were obtained with extreme difficulty and for a period of about sixty years, it was used in various forms for jewelry purposes. It was found in Georgia in 1883 and in Arkansas in 1891. This latter field now supplies about 90% of the entire output of the ore. New fields are constantly being opened and the aluminum enterprise may soon prove to be the leading industry of America.

A chemist by the name of Charles M. Hall, an American, conceived the idea that aluminum could be extracted from the ore by an electrolytic process. He was successful in producing the metal by the electric method. This was so revolutionary in the manufacture of the metal that the price was reduced from $90.00 per pound

to $16.00 per pound. As the process of extraction was still further improved, greater quantities were produced and the present price is about 27 cents per pound or $108,000,000 worth produced per annum. In 1886 the total output was about one and one-half tons annually. This yearly output has increased until in 1926 more than 200,000 tons or 400,000,000 pounds was produced. There is no known method of determining accurately how much of the metal was used in the manufacture of kitchen utensils but an estimate could be made from various aluminum companies' reports. About two and one-half billions of dollars were spent in America during the last twenty years for the purchase of aluminum kitchen utensils alone. This would mean about an average purchase, for the twenty year period, of $70.00 per family, on a basis of families now existing.

WHAT IS BAUXITE?

Bauxite ore is common clay used for the purpose of making various kinds of pottery ware, tile, road and building bricks, sewer pipe, earthenware, in the arts and in making various molds, etc. The metal base for bauxite is aluminum.

WHAT IS ALUMINUM?

Aluminum is a metal which is constantly being used for new purposes. The most common purposes for which this base metal is used are for tops for monuments, novelties too numerous to mention, long distance electric transmission wires, mail boxes, steam and hot water radiators, condenser tubes, water tanks, covers for cylinder heads, crank cases, washing machines, piping, radiator shells, hub caps, automobile and aeroplane bodies, step plates, engines of war, frame work for dirigible balloons, wash basins, various kinds of dental and surgical instruments, bottle caps, medicine containers, salve spreaders, pencil sharpeners, and holders, trays in restaurants, throttles for automobiles, parts for steering wheels, base plates for false teeth, paints for metallic objects, such as weighing machines, chandeliers, stove

pipes, etc. This metal is also used for removing gas from hot steel and in the manufacture of starin, also various kinds of furniture and passenger coach purposes.

WHAT IS ALUMINUM SULPHATE?

When aluminum is united with sulphuric acid in proper molecular proportions, it becomes aluminum sulphate. Aluminum sulphate forms double salts with the sulphates of the metals of the alkalies (as sodium or potassium or rubidium, etc.) known as the alums. In the bulletin No. 103 of the Department of Agriculture relating to the work of the so-called Remsen Board, these substances are defined as follows:

> "Aluminum is a synonym for aluminium, the metal used for cooking utensils and other implements. Alum or Sodium Aluminum Sulphate is a salt of this metal."

WHAT IS A SALT OF ALUMINUM?

An alkali is in effect the opposite of an acid principle, that is to say, when the alkaline substance is mixed in proper proportions with an acid substance, the acidity and the alkalinity are both destroyed, and the resulting substance is known as a salt. Such salts are usually known as the alums. An alum, when in combination with hydrogen, becomes a hydroxide or hydrate.

WHAT ARE ALUMINUM COOKING UTENSILS MANUFACTURED OF?

The writer is informed that a number of various metals are used in the manufacture of aluminum utensils. Science has recently advanced in the handling of metals in conjunction with aluminum. Only a few years ago we were first enabled to solder aluminum. Since then it has been found various metals will alloy with the metal such as cryolite, bismuth, calcium, copper, chronium, gold, iron, magnesium, manganese, mercury, molybdenum, nickel, platinum, silver, sodium, tin, titanium, tungsten, zinc, etc. Whenever a new combination of

metals with aluminum has been made possible, a different use was found for the product or a new kind of cooking utensil made. A new or trade name usually was given and each time this occurred, the product manufactured was advertised as better than those previously made of *aluminum.*

Several companies making cooking utensils have recently been enabled to alloy aluminum in such proportions that they do not call the product aluminum. The utensil is sold under the chosen trade name and there is nothing to indicate to the public that they are purchasing aluminum alloyed utensils.

At first aluminum cooking utensils were made of stamped or spun metal which were produced from nearly pure aluminum. As the metal was then quite expensive, a method was sought to produce cheaper utensils. A process of casting by alloying with copper was used. Later various other metals were introduced into aluminum cooking utensils. During recent years in which the various methods of alloying have taken place, not one word of information concerning such changes has ever been stated, to the writer's knowledge, or that it has ever been published that such alloys are in aluminum cooking dishes. Books and pamphlets prepared by aluminum associations supposed to give the latest scientific information on aluminum cooking utensils, as distributed to the public, do not state what alloys are being used or that they were ever used by them in kitchen utensils manufactured for public sale. The writer deems this of sufficient importance that the public should be informed regarding it. When cast iron, steel, glass, copper, tin or earthenware are bought by the public, it knows what it is buying, but the writer does not believe *the public generally understands what metals it is buying when aluminum cooking utensils are purchased.*

It seems incredible to the writer that the material or substance—alumina—called by various names which are above referred to—could possibly be used in the manufacture of foods for public sale or that the metal would be allowed to be sold as cooking utensils, when it dissolves and becomes ingested in the foods cooked therein: or—that dentists will use aluminum (*an acid metal*) for

base plates for false teeth, when it would be in contact with the saliva (*an alkaline substance*), twenty-four hours a day; or—that physicians will prescribe it to counteract an acidosis condition, which disease it very likely produces.

The metal in any inorganic form, taken internally, is an irritant to the mucous membranes. All metal irritations should be avoided by the human anatomy. It has become evident to our foremost thinkers that something which the American public is consuming, is causing bodily irritation, which may be the cause of such wide-spread gastric diseases, including ulcers and cancer.* Dr. Joseph Colt Bloodgood, Surgeon at St. John Hopkins University, Baltimore, Md., gave a lengthy discussion of the subject, in the Toledo Times, April 10, 1927, in which the following quotation is noted:

* * * * * *

> "The only hope of curing cancer today rests in the fact that there is every evidence *that cancer does not begin as cancer. There is first a local lesion (broken tissue) which is not cancer. Then the cells* of the local lesion *which are not cancer cells, for reasons we do not understand, become cancer cells.*"

If **alumina** is an irritant to living tissue, as claimed by many authorities throughout the world, it seems to the writer that the substance should be completely avoided in its relation to **or used in connection with food.** There is no doubt in the writer's mind that we **have here one of the great sources of chronic poisoning or irritation which may be cancer producing,** referred to as above quoted by Dr. Bloodgood.

(Italics mine—Betts.)

*See Page XVI.

Gastropathy (Stomach Diseases)

DO ALUMINUM COMPOUNDS AFFECT *DIGESTION?*

THIS is a most important question. No greater requirements are made of any of the organs of the body than those of the digestive tract. The mouth, stomach, duodenum and intestines alternate in supplying alkaline and acid juices required for digestive purposes. Normally the saliva or mouth juices are alkaline, the stomach supplies an acid juice, the duodenum juices are alkaline and the intestinal are acid, so when the normal process of digestion is interfered with by metal poisons such as aluminum which has an absorbing power, a condition known as "acidosis" is created and the normal balance of alkalinity in the body fails and sickness results. If such interference takes place too often, it is evident that the various juices will fail to properly function during the digestive process. Following is Dr. H. A. McGuigan's views regarding the effects of aluminum compounds ingested in foods.

> "When aluminum compounds are taken internally, the action is due to chemical local action on the stomach and intestines, the acid liberated upon the union of metal and protein penetrating to the tissues with an astringent effect. The local reactions are *loss of appetite, pain and discomfort, nausea, vomiting, purging, congestion, hemorrhages resulting from irritant and corrosive action. Ulcers may result from bacterial action on dead tissue.*"

Dr. Wm. Held, President of the United States Health League, Chicago, Ill., quoted in the Western Medical Times, Denver, Colo., of August, 1927, in reference to the above quotation, states:

> "This means in the language of the laity that after the aluminum compounds have raised havoc with the stomach and have reduced the resisting and fighting power of the parts, bacteria, which are always present but which could not harm the healthy organs, are now free to do their destructive work on the unprotected tissue."

Dr. Held further states:

> "If you are taking some aluminum compound as a medical prescribed by your physician for some ailment for which such drug is indicated and besides also eat food prepared in aluminum dishes, you obviously ingest more than your share of aluminum drugs. But if you are not taking aluminum in medical doses under doctor's direction, but eat food prepared in aluminum dishes, then you get the aluminum drug, whether you need it or not. And the doses you get and the kind of aluminum compound you eat, are without rhyme or reason, because there is no way of knowing dose or kind of compound when you eat several meals a day, carrying all kinds of aluminum compounds with them."

This may also be true with any part of the alimentary tract from *mouth to anus,* where such poisons come in contact with the tissues. So it behooves us not only to select proper foods or their combinations but to investigate what they are cooked in or what they come in contact with during their preparation. Alum dissolves from aluminum cooking utensils and becomes part of the food product while being cooked therein. Again countless foods are prepared in laboratories and various ingredients taken in the raw inorganic form, are mixed with food materials, i. e. aluminum baking powders, etc., and so millions of people eat aluminum compounds in foods prepared for public sale, under various titles frequently put up under scientific names that the average person does not understand. Government authorities frequently make extensive examination of such poisons

and after a year or more of time is expended (The Remsen Board, for instance, functioned for six years—1908 to 1914, Bulletin No. 103 was issued by the Agricultural Department), a small bulletin is issued. These are sold by the Government to the public upon request. Apparently only those interested know that such bulletins are available. It may be of interest to quote some of the bulletins or items published after scientific examinations had been made regarding the effects of aluminum compounds upon animals and men. Such substances are used in foods prepared for public sale in our shops.

> "W. D. Bigelow and C. C. Hamilton (Journal American Chemical Society, Volume XVI, pages 587-597) conclude that the influence of aluminum hydroxide on digestion is about the same as that of an equivalent quantity of alum."

OHIO BULLETIN—1887

> "From this fact many persons condemn the entire class of alum baking powders as being unhealthy.
>
> Pure alum is undoubtedly a harmful sale and resultant salts from its combination with soda can scarcely be less hurtful."

EXPERIMENTS OF PROF. J. W. MALLETT—1888

> Professor J. W. Mallett, University of Virginia, published a series of experiments, 1888. In these experiments he used one brand of straight alum baking powder, sixteen brands of alum-phosphate powder. Baked bread with these powders. He found aluminum phosphate and aluminum hydroxide existing in the hydrated form in the bread made with these powders. Administered these compounds to men. Reported,
>
> ". . . in doses not very greatly exceeding such quantities as may be derived from bread as commonly used, aluminum hydroxide and aluminum phosphate produces, or produced in experiments upon myself an inhibitory effect upon gas

tric digestion. From general nature of the results obtained, the conclusion may fairly be deducted that not only alum itself, but the residues which its use in baking powder leaves in bread cannot be viewed as harmless but must be ranked as objectionable and should be avoided when the object aimed at is the production of wholesome bread."

Professor Mallett also published reports of a series of experiments in which he found aluminum hydroxide and aluminum phosphate to be soluble in gastric juice.

In a report, United States Department of Agriculture, Division of Chemistry, Bulletin No. 13, subject: Foods and Food Adulterants, by C. A. Crampton, 1889, quoting from Hassel upon the effects on the system of aluminum:

U. S. BULLETIN—1889

"But its action in neutralizing the efficacy of the digestive solvents is by far the most important and unquestionable for while it prevents solution while the bread is being prepared, it also continues its effect when taken into the stomach and the consequence is that a large portion of the gluten and other valuable constituents of the flour are never properly dissolved but pass through the alimentary canal without affording any nourishment whatever."

EXPERIMENTS OF J. WEST KNIGHTS

J. West Knights, F. C. S. (the Analyst, 1880, page 67) published the results of a series of experiments to determine the influence of alum upon the digestibility of gluten. He concludes:

"This powerful action of mere traces of alum or salts of alumina upon soluble gluten or diastase is, I think, sufficient foundation upon which to assert that alum either in a soluble form or mixed with carbonate of soda, is injurious to health when

introduced into bread; the extent of the injury may or may not be small."

EXPERIMENTS OF PROFESSOR R. F. RUTTAN

Professor R. F. Ruttan of McGill College, Montreal, published the result of a series of experiments on the digestibility of bread baked with alum, and among other things, concludes:

"The presence of alkaline sulphates and of the pulpy viscid hydrate and phosphate of alumina is sufficient to explain the relative indigestibility of bread containing these salts. . . While the effect of alum is to entirely prohibit ferment action, that of the products resulting from the use of an alum powder is merely to retard digestion, not to entirely prevent it."

EXPERIMENTS OF H. A. MOTT ON DOGS

"H. A. Mott (Journal of American Chemical Society, Volume II) describes experiments made upon dogs fed with biscuit prepared from alum baking powder. Sickness and vomiting followed by constipation were well marked in each case where five dogs were experimented upon. Three dogs fed with biscuit made with the same amount of cream of tartar powder ate well and were in no way affected. Also reports digestion very long delayed or entirely prevented."

"Henry B. Cornwall. "Composition and Comparative Healthfulness of the Baking Powders sold in this State." Reports of the Dairy Commissioner of the State of New Jersey, 1888, Trenton, 1889."

N. J. BULLETIN—1888

". . . Not even the boldest advocate of alum powders have denied the injurious tendencies of soluble aluminum compounds in the bread."

* * * * * *

"In the writer's opinion, the presence of alum

in baking powders is objectionable, since, under certain conditions, it may exert an injurious effect on the digestion. The effects may not be very marked in the case of any individual consumer, but that they can be induced to a greater or less extent, seems to be well established."

NORTH CAROLINA AGRICULTURAL EXPERIMENT STATION, BULLETIN No. 155, DECEMBER, 1898.

"The residue of aluminum hydroxide is insoluble in water. The residue is soluble in the juices of the body and is thus absorbed by it."

Under the head of "Alum and Phosphate Powders" the author sets up an equation showing the residue and remarks:

"It will be seen that the alum contained in this residue is held as phosphate of aluminum, which is about as soluble in the juices of the body as the aluminum hydroxide residue from the straight alum powders."

BULLETIN No. 68. LABORATORY OF THE INLAND REVENUE DEPARTMENT, CANADA, 1900, QUOTES HENRY MORTON, PRESIDENT OF STEVENS INSTITUTE:

"I took a portion of this (alum) powder and mixed it with flour in the directed proportions, and baked a small loaf with it, then I soaked this loaf in cold water and made an extract in which I readily detected alumina in a soluble condition."

REPORT OF CONNECTICUT EXPERIMENTAL STATION, 1900.

"Hydrate and phosphate of alumina in a moist condition are white gelatinous substances, insoluble in water, but soluble in dilute hydrochloric acid, . . . There is also good reason to believe that both the hydrate and phosphate of alumina are soluble in the muriatic acid of the gastric

juice and may have a physiological action similar to that of alum."

The following quotations are taken from the public hearings Docket 540 Federal Trade Commission, Washington, D. C.:

Dr. Anthony McGill, of the Health Department of Canada, conducted experiments relative to solubility of aluminum in the gastric juices and in a Canadian Government Bulletin in 1900, reported the solubility of hydrate of alumina in gastric juices.

Other prominent scientists have not only made investigations for their own constituents but have given statements or testimony before our Federal authorities, concerning the effects of aluminum compounds upon digestion in relation to animals and men. A few are quoted here. The writer desires principally in this article, to give the reader an abundance of evidence upon gastric interference by such a potent poison as that produced by the metal aluminum in its various forms, ingested from aluminum baking powders, aluminum cooking utensils, aluminum water purifiers and aluminized medicines.

Dr. Paul Schweitzer, retired Professor of Chemistry, University of Missouri, says, "Careful analysis of bread risen with alum baking powder shows a portion of the alum from the baking powder remaining in the bread as such and unaltered."

John C. Wise, M. D., Medical Inspector, U. S. Navy, says: "The injurious effect of alum on the mucous coat of the stomach is positive and beyond dispute; it is both an irritant and an astringent. The use of alum in any article of food or article used in the preparation of food should be prohibited."

Edward S. Wood, M. D., Professor of Chemistry, Harvard Medical School, Boston, says, "I am very strongly of the opinion that the use of alum and salts of alumina in food should be prohibited. It is well understood that the constant use of alum compounds exerts both a deleterious effect upon the digestive organs and an irritation of the internal organs after absorption."

Dr. John Allen Killian, Master of Arts in Chemistry, Doctor of Philosophy, Instructor and Professor of Analytical Chemistry at Fordham Medical School, New York, and

Dr. Victor C. Myers of Iowa City, Professor of Biological Chemistry, University of Iowa; Pathological Chemist; Ph. D. at Yale; Professor of Physiological Chemistry, Albany Medical College,—collaborated in a set of experiments on men and on dogs and, as testified by Dr. Myers,—

> "First experiment largely made on patients in medical wards. Used * *, * * * *, and ** baking powders*. Experiments were to ascertain the solubility of aluminum salts in the gastric juices of the stomach. In first experiment the amount of soluble aluminum amounted to about 10% of the total aluminum.
>
> In the second experiment it amounted to about 33% of the total aluminum. Solubility in the stomach does not necessarily mean that the aluminum which does dissolve will necessarily be later absorbed in the digestive process. Witness describes further experiments with the duodenum juices. In one case they found .25 miligrams, of aluminum per 100 c. c. Second case, found 1.03 miligrams. Third case, 1.5 miligrams. In this case we also determined the total aluminum which amounted to 13 miligrams. The soluble aluminum therefore constituted a little more than 10%."

Dr. Arnold K. Balls, Master of Science, University of Pennsylvania. Took up Pure Science, Columbia University. Member of Society of Experimental Biology and Medicine. Author of several publications. Conducted a series of experiments, published 1920, to determine the occurrence of aluminum and its absorption from food in dogs. The witness conducted several experiments, the details of which are set out in full in Respondent's Exhibit 111 and testifies that he found from bread

*Names of alum baking powders on record omitted.

baked with aluminum baking power practically all the aluminum is extracted by artificial gastric juices and after gastric digestion of such bread, some aluminum still remains dissolved when the duodenal juices affecting the digestive mixture (are) simulated invitro. In normal dogs, aluminum exists, if at all, in amounts too small to be demonstrable by the best available methods. Aluminum is absorbed by dogs from food containing aluminum phosphate, and from bread baked with alum baking powder. Much of this aluminum is speedily eliminated, but some is retained, replacing part of the iron occurring normally in the tissues."

Dr. Russell H. Chittenden, Director, Sheffield Scientific School of Yale, thinks it probable that the residue or residues from alum baking powder baked in bread would comprise aluminum compounds more or less soluble in hydrochloric acid.

Now, of course, you can consider the introduction of very large doses of aluminum, you may consider it possible to have that fatal result. There is no question at all about the injurious action of very large doses of aluminum introduced directly into the circulation or introduced directly into the gastro-intestinal tract.

> "Q. Aside from all extreme cases, taking the ordinary case, is it not quite certain that free hydrochloric acid would have an opportunity to act upon any aluminum compound in the stomach?
>
> A. I think so, decidedly, sooner or later.
>
> Q. So that at least in many cases you would expect that aluminum compounds in the stomach would be acted upon by free hydrochloric acid?
>
> A. I should, most decidedly.
>
> Q. And if they were, what would you expect to be the result in the case of these residues from baking powder?
>
> A. That they would pass into solution in some degree.
>
> Q. And what would you expect that one of the results would be the formation of aluminum chloride?

A. It would be possible . . . of course, it is very difficult to say "yes" and "no" to some of these questions, but that is quite a possibility, indeed a probability.

Q. You think it is probable at any rate that the residue or residues from alum baking powder baked in bread would comprise aluminum compounds soluble in hydrochloric acid?

A. More or less soluble in hydrochloric acid."

Dr. Hal Truman Beans, Professor of Chemistry, Columbia University, testifies that he had recently undertaken experimental work to determine by analysis the reaction products of a baking powder containing sodium aluminum sulphate and calcium acid phosphate. Found it to be partially soluble in the faintly alkaline solution resulting from the treatment of these mixtures with water. It is completely soluble in .03 normal hydrochloric acid at 37° C. Baking powder of the composite type which has in addition to sodium aluminum sulphate a certain amount of calcium acid phosphate produces aluminum compounds upon reaction which are more soluble in dilute hydrochloric acid than does a baking powder of the straight alum type containing sodium aluminum sulphate as its sole acid reacting ingredient."

OPINION BY DR. ALBERT P. MATTHEWS

"Q. What, in your opinion, are the effects of the aluminum residues as they occur in biscuit prepared with alum phosphate baking powder upon the digestion, metabolism and health of men?

A. They will check somewhat the rate of digestion in the stomach by combining with the peptic ferments and possibly with the proteins during their digestion."

EFFECT ON DIGESTION

"In the intestinal tract the aluminum of these residues will combine with and check the action of the various digestive enzymes and in this way

slow the rate of digestion not only of the proteins but of the fats and carbohydrates as well."

Dr. Anthony McGill, retired member of the Health Department of the Canadian Government, testified as to his long experience as a health officer and identified the various bulletins issued by the Canadian Health Department known as the "Laboratory of the Inland Revenue Department." Reports experiments made by himself:

> "The inhibitive effect of alum upon gastric digestion is well-established and the great insolubility of dessiccated alum compels the inference that alum as such remains in the bread, in all cases where an alum baking powder has been used."

CONCLUSIONS OF DR. A. McGILL

> "In 1889 in published Bulletin, I expressed my conviction, based on experimental evidence at that time available, that alum in baking powder is dangerous to health. The large mass of evidence which has accumulated since has more strongly convinced me of the correctness of that opinion. A disturbance of gastric digestion would seem to be inevitable.
>
> "It is, moreover, capable of entering into combination with, and thus rendering unavailable for nutrition, any otherwise available phosphates which food may contain. This is probably the worst office served by the alumina introduced into the digestive system as alum powder. The sulphate of soda is a powerful drastic purgative in doses of half an ounce, calculated upon the crystallized salt, and corresponding to 0.22 ounce of the anhydrous salt."

The following tests have been made to determine positively, whether or not aluminum has any direct effect upon digestion. The scientists who made the examinations reported below, are second to none in this country. It is the writer's opinion that such reports should be of extreme interest to everyone.

TESTS OF DIGESTIBILITY OF ALUMINUM COMPOUNDS

Dr. Victor C. Vaughan, Dean of the University of Michigan for thirty years and Ex-President of the Medical Association, made experiments on digestion.

> "In 1909 I made some experiments on the effect of aluminum hydrate upon gastric digestion. This was done in test tubes in laboratories, not done in the animal body, and I found that the addition of aluminum hydrate delayed the digestion of egg white by the gastric juice. I found that a given gastric juice, without any alum in it digested 93.9% of the egg white in a given time; while with the addition of aluminum hydrate, it digested within the same time, only 57.5%."

Dr. Frederick S. Hammett and Dr. Andrew Dingwall, Ph. D., made tests of the digestibility of alum biscuit and alum phosphate biscuit in comparison with control biscuit (sodium acid sulphate) demonstrated,

RESULTS—PANCREATIC—FAT DIGESTION

"Alum	63.1%	67.7% of the control
Alum-phosphate	50. %	64.8% of the control

PROTEIN DIGESTION

Alum	70. %	72.7% of the control
Alum-phosphate	78.8%	86. % of the control."

The writer judges that such a preponderance of evidence as herein quoted and given under oath to our Federal authorities, should be sufficient to convince anyone that aluminum compounds affect the digestive organs and also materially change food values when in connection therewith, so that the nourishing qualities are greatly interfered with. Poisons of this character are always irritants to the mucous membranes. Continual irritation of the parts leads to bacterial action on dead tissues which may be the cause of ulcer—potential cancer. Our foremost dietitians and domestic science teachers give the writer the information that about 75% of their constituents have gastric or its accompanying diseases. If this is true, there is something poisonous affecting human-

ity, that has not been noted by a great majority of our professionals, whose duty it should be to determine such truths and facts, so our people's health—man's greatest prize and possession—may be conserved. **"Toledo, Ohio, is a Sick City"**—Toledo Blade, March 11, 1927. **Ohio is a sick State and we are a nation of sick people. May the truths brought forth in this article be made known to our citizens, even though great financial interests may be adversely affected.**

(Italics mine—Betts.)

Myocarditis (Heart Disease) Apoplexy (Broken Blood Vessels)

DO ALUMINUM COMPOUNDS AFFECT THE HEART AND THE ARTERIAL SYSTEM?

THE organs which control the circulation of the blood in the body must never be impaired if the functioning of the body is to continue in its proper manner. These organs rank with the lungs and brain in their order to maintain life. The body must have a normal flow of the blood if perfect health is to be maintained. The heart acts as a pump, although it is only a part of the system which operates the blood flow of the body.

When one investigates what is required of the arterial system and what it actually does every hour or day that life is maintained, it becomes evident that no potent poisonous substance should come in contact with the blood. If a poison is absorbed into the body the blood is the first to take it up, which carries the element along the arterial tract and thus the organs of circulation become diseased, also, the tissues through which the blood passes are injured or destroyed. The following quotation informs us very graphically what work or labor the heart and the arterial system do. The writer judges the compilation refers to the life of the average adult person. The item is taken from "Physical Culture" Magazine, December 1927 and written by Edwin F. Bowers.

> "Every time the average heart beats, it pumps about two ounces of blood. This means that the heart must force into the arteries about one hundred and eighty ounces of blood a minute, six hundred pounds an hour, or about eight tons a day. Practically every drop of blood in the body is

> pumped through the heart once in every three minutes.
>
> "So this little pump of muscle, no bigger than a fist, performs each day an amount of labor equivalent to lifting one hundred and thirty tons one foot high, or lifting one ton one hundred and thirty feet high. A truly wonderful pump!"

Naturally what we consume not only affects the blood but forms the substance of which the blood is composed, therefore any substance which changes the normal constituency of the blood sufficiently to cause disease or poisoning to the various tissues, will also, in my opinion, have a deleterious effect upon the arterial system.

Aluminum is recognized as a protoplasmic poison by many scientists of national repute. It may be well to investigate the record and note here what various scientific and medical authorities have stated upon the subject. Dr. Harry Gideon Wells, the Pathologist of the University of Chicago, has made a very extensive examination into the subject of aluminum compound poisoning and concludes that aluminum is poisonous to all forms of life including the higher animals. Following is a quotation from him which shows that aluminum causes anemia, due to the reduction of the red corpuscles in the blood, owing to the fact that the capillary system becomes clogged with the coagulated corpuscles, after aluminum has been absorbed.

> "Aluminum compounds, if in solution, may pass into the *blood stream* by diffusion through the cells of the digestive tract. This diffusion may take place in any part of the digestive tract *from the lips to the anus* so that the whole of the digestive tract may be *affected.* They may pass into the blood along with fats. The moment an aluminum compound has passed through or into the wall of the intestine beyond the surface and *entered the blood vessels* of the intestinal wall, it will come in contact with the *red corpuscles* and cause these corpuscles to *aggregate* or *clump* and have opportunity to produce this *injurious effect* exact-

> ly the same as if the aluminum compound had been injected into the blood directly. The tendency to *aggregate* is a *serious matter* since the aggregated corpuscles cannot pass through the capillaries of the body, and tends to clog them up. Experiments have shown that when metallic substances act upon red corpuscles to produce *such changes in the corpuscles,* the corpuscles become more *fragile, break up* more readily and lead to *anemia* or the reduction in the number of *red corpuscles in the blood.*
>
> It is possible for all the poison (*alum*) that is taken by mouth to be recovered in the discharges from the bowel and yet produce evidence of poison in remote parts of the body."

A careful reading of the above should convince the most *casual observer* that the action of aluminum upon the corpuscles in the aforesaid manner would require a greater effort upon the heart and arterial system to *propel the blood through the body.*

If a person continuously consumes metal poisons of this character it is the writer's opinion that the added "*load*" will soon cause a weakening of the organs and an *abnormally high blood pressure* will be the result. Many scientific experiments upon animals have been made by chemists to determine if aluminum is taken up by the heart and other organs and if they then become injured or poisoned by it. Such an experiment was made by Henry A. Mott, Jr., Ph. D., reported in a paper of the Journal of the American Chemical Society, Vol. 2, entitled "The Effects of Alumina Salts on the Gastric Juice in the Process of Digestion", of which he is the author. He

> "gives results of experiments on dogs with an alum baking powder in which ten to twelve teaspoonfuls of powder were used to one quart of flour and describes the symptoms developed in the dogs. Also describes the feeding to dogs of meat mixed with precipitated hydrous aluminum. He recovered aluminum *from the blood* and the *liver*

> of the dogs. Also gives what Arnold and himself recovered *from the blood, kidney, heart, spleen* and *liver* of a dog which had been given twelve ounces of the precipitated aluminum hydroxide by mouth during a period of four days. He calculates that 30% of alum was in the baking powder and that a biscuit weighing 24¼ ounces contained *three grains* of *aluminum hydroxide.*''

Another report of an experiment upon an animal is worthy of record. In this report the metal aluminum was found in various organs and *in the blood.* John Allen Killian, Master of Arts in Chemistry: Doctor of Philosophy, and Instructor and Professor of Analytical Chemistry at Fordham medical School, New York,

> ''testifies to an experiment on a dog in which it was attempted to study whether the aluminum in biscuits fed over a period of time was absorbed to such an extent that it could be detected in the organs of the body. The dog was fed biscuit in which its total intake per day was 190 miligrams of aluminum. The dog was killed and he reports finding aluminum *in the blood* and from the *liver* he obtained .33 miligrams of aluminum per 100 c. c., the total volume of the liver being 330 c. c.; also obtained aluminum from the kidneys and in the bone.''

The following quotations are from reports of various scientists and chemists who have been making extensive scientific research regarding aluminum compounds and their action upon the blood of men. The writer desires to prove, by these statements, that aluminum when taken into the body, is absorbed and is found in the blood stream.

Philip B. Hawk, Ph. D of the Jefferson Medical College, Philadelphia, Pa.; Physiological Chemist; Head Master of Boys' School and Director of Food Research Laboratory; Author of books on Practical Chemistry,

> ''testifies that he undertook work on the question of absorption of aluminum. Two normal men

were fed biscuit made with alum baking powder. blood was taken from the subjects after ingesting this diet for some six weeks and aluminum found in the blood of both men. Also determination made of aluminum in the gastric juices in human subjects after feeding the same aluminized buscuit and it was found that aluminum was present in the gastric juices also in the urine of both subjects which would indicate that aluminum had been absorbed into the blood."

Dr. Frank C. Gephart, Ph. D. of 23 East 31st Street, New York City,

> "who analyzed six samples of blood taken from human beings (three, Talladega, Ala.; three South Carolina State Hospital) all of whom had received unknown and variable amounts of aluminum in baking powder food,—found one to four parts per million in five out of the six samples."

Willis S. Hilpert, Chemist, Miner Laboratory, Chicago,

> "testifies he obtained samples of blood from individuals at the Penitentiary, Little Rock, Ark., and who had been there, all of them, for at least one and one-half years and during that period had partaken daily of food prepared from alum phosphate baking powder. This blood was analyzed and he found aluminum in small quantities *in the blood* of the four samples which he analyzed, the amounts being 1.7 to 3.2 parts per million."

Here again the reader will note that aluminum was found *in the blood with a tendency to accumulate. It* was also found in the organs of the body, with the exception of the heart and the brain, which seemed to resist accumulation. Dr. Max Kahn, the Director of the Laboratory of the Beth Israel Hospital and an Associate in Biological Chemistry at Columbia University, testified:

> "during the summer of 1911, conducted some ex-

periments with a view of finding out whether aluminum is absorbed from the alum baking powder when baked in bread and whether the aluminum was stored up in the various tissues of the body. Experiments lasted *four* or *five months;* used * * * Baking Powder* which is straight alum baking powder. Result of these experiments was published in Biochemical Bulletin, 1911, under the title "Absorption and Distribution of Aluminum from Aluminized Food." Witness describes the diet that the dogs were fed and the periods of time which extended from two months in some cases to fifty-two days in others. The dogs were bled to death and the blood and tissue analyzed." Witness concludes,

"When biscuit baked with alum baking powder are fed in a mixed diet to dogs, the *aluminum passes in considerable amounts into the blood.* Such absorbed aluminum circulates freely and although it does not show a tendency to increase proportionately in the blood, it *accumulates* to some extent in the *various parts* of the body, the bile containing a particularly *large amount* of aluminum under such circumstance. The *pancreas* and *spleen,* the *liver, muscle* and *kidney* contain *considerable amounts* while the brain and heart seem to resist the accumulation of aluminum."

"Alum, when ingested in aluminized food under the conditions of these experiments, is absorbed in part and is excreted to some extent in both the *bile* and *urine.*"

The above quotation is perfectly corroborated by Dr. Matthew Steele, Professor of Biological Chemistry, Ph. D. Instructor, College of Physicians and Surgeons, Columbia University, in his experiments to determine the same question that arose in Doctor Kahn's mind regarding poisoning of the blood by aluminum compounds. Following is Doctor Steele's findings. He

"made experiments starting in 1909 on the ab-

*Name of baking powder omitted by the author.

sorption of aluminum from aluminized food and published the details of his experiments and the results in the American Journal of Physiology, May 1, 1911. Investigation consisted of fifteen experiments on dogs. Eleven of these experiments pertained to the passage of *aluminum into the blood* from aluminized food and four experiments related *directly to the passage of aluminum from the blood into the feces.* Full grown normal healthy dogs were used. In some of the experiments biscuits prepared with alum baking powder were used in the diet."

"The results of the experiments 10 and 11 show clearly that the aluminum in alum baking powder is not rendered wholly insoluble in the bread baking process. Amounts of aluminum equal to some of those recovered after the administration of plain alum in powdered form were found *in the blood* of the dogs that received the alum baking powder biscuits.

The general conclusion was that when alum was administered in aluminum free food to dogs, or when dogs ingested biscuit baked with alum baking powder, aluminum in comparatively large amounts promptly passed into the blood.

Absorbed aluminum circulated freely, but as it did not show any pronounced tendency to accumulate in the blood its full effects must have been registered outside of the circulation. When aluminum chloride was administered intravenously, from 5.55% to 11.11% of the aluminum passed from the blood into the feces during the three days immediately after the injection."

That which the various scientists have determined from extensive scientific investigation with the use of animals should be of considerable interest to the layman. Aluminum compounds may be of such a nature that when taken into the body, often or regularly, over a given period of time, deleterious effects may become more and more severe or that which is known as "cumulative effects" may be produced upon the circulatory system

as well as upon the other organs of the body. This matter has been examined by many *prominent medical* and *scientific authorities* but one quotation which deals with aluminum compounds as protoplasmic poisons, will suffice here. Dr. Harry Gideon Wells, Pathologist of the University of Chicago,

> "classifies aluminum compounds as protoplasmic poisons. The fundamental element of all cells is protoplasm which in its essential characteristics and behavior is similar in all living forms. I base this opinion upon knowledge of the literature, reports of investigators, observation of experiments upon evidence in the literature concerning the effect of alum compounds upon *men,* upon testimony of scientific investigators given before this Board and upon my own observations without exception, *as far as I have been able to find, these investigators have all observed that the effect of these compounds upon the living cells was deleterious even when the aluminum compounds were present in remarkable small quantities.* The growth of algae is either prevented or checked. Animal forms, such as the *egg* of the *sea urchin,* have been reported to be affected so that the *cells* which have been *fertilized* can not continue to multiply or when aluminum is applied before fertilization is attempted, *fertilization will not take place.*"
>
> "Now, with these cumulative poisons, the effects *fail of repetition* frequently because they have to some extent *impaired the functions of the body.* Its resistance to other *unrelated injury is reduced* and consequently they suffer more from these *injuries* than an *otherwise normal person would,* and the damage is attributed to this *new cause* which has nothing to do with their chronic metallic poison.
>
> These results may occur because of large doses but they may come from *small doses of aluminum compounds administered over a considerable period. A small* quantity acting for a long time

may produce results *quite as marked* as a *larger* quantity acting for a shorter space of time.

The resistance of the intestinal wall to bacteria would be reduced and they would get a *foothold* and *begin to grow* there when they could not do so in a *normal* intestinal wall.

There are two effects to be observed at the introduction into the *human* digestive tract of aluminum compounds, the *direct effect of carrying the substance into the circulation,* and an *indirect effect in the intestine and in the arterial tract rendering the human organism more susceptible to disease.*"

Poisoning by aluminum compounds has been so noticeable to our foremost medical scientists that investigations upon animal tissues have been made in various localities. When one considers the present health condition of the public in general, there must be something that all or most all of us are getting, from one or more sources. Aluminum compounds are not only used in baking powders but in *public city drinking water* as well as being used in *medicines.* Aluminum dissolves from our *aluminum cooking dishes at all times,* when used in *connection with our foods during the cooking process.* And so it behooves all to look well into the investigations and findings of such *prominent medics* as quoted above.

Heart disease has had a tremendous increase during the last twenty years, as has also, apoplexy (breaking of the capillaries). This has reached such a point that deaths from the above named afflictions almost equal all other diseases combined. This has attracted the attention of the foremost thinkers of the nation. A demand has been made upon our colleges to make investigation as to why this appalling fact is before us. It seems to the writer that we have already been too long in overlooking one of the **great sources of chronic poisoning. May the day soon arrive in America when financial gain from selling aluminum baking powders, aluminum cooking utensils, aluminum in medicines and in drinking water, will be set aside for the greater thing—the nation's health.**

(Italics mine—Betts.)

RACE SUICIDE

DO ALUMINUM COMPOUNDS AFFECT THE BRAIN, NERVOUS SYSTEM AND THE REPRODUCTIVE ORGANS?

THIS very important and vital question has frequently been raised by many scientists and investigators of aluminum compounds ingested in foods from aluminum kitchen utensils, alum baking powders, etc.

There are many ways in which we ingest aluminum compounds. They are ingested frequently without our knowledge or even a suspicion that they are contaminating our foods with poison. Millions of people do not know that they are consuming such compounds from their aluminum cooking utensils, alum baking powders and water purifiers made for the sick or from medicines and drinking waters; and so, it is evident that they are innocently injuring their bodies without even suspecting that such is the case or that the matter should be investigated from a health stand-point. If such compounds are injurious to the reproductive organs or other parts of the nervous system, it is this writer's opinion that such a matter should be made known to our people, so the *manhood* and *womanhood* of this nation *may be protected.*

It is worthy of notice that the tendency among Americans is toward smaller and smaller families. While the population is increasing, such increase has not taken place among various classes of Americans by whom aluminum compounds have been mostly consumed. Another example of this condition is in France, where aluminum is used extensively while it is little used in Germany. The birth rate in the latter country is about twice as high as in the former.

It is the belief of this writer that the first aim of every citizen should be—to be as near physically per-

fect as possible so as not only to be able to engage in life's work to the highest point of efficiency and to enjoy the fruit or blessings of his labor, but to maintain a home and to rear children who will be more able to cope with life's problems even better than the present generation. If we are consuming, daily, substances which *destroy our bodies* or make us unfit to bear children or otherwise to enjoy life's tasks or pleasures abundantly, we are the losers, just to the extent that we *consume such poisons.* Not only ourselves but the future generations will suffer from our lack of interest in finding out what may or may not be of benefit or to the contrary be injurious to our bodies. Health is not only a personal matter with us but our unborn children will also be affected by what we, ourselves, are, mentally and physically, just as surely as there is a law of heredity.

The writer believes that we should look well into the subject of aluminum poisoning especially concerning the effect of the drug upon the brain and nervous system, also the reproductive organs. Many of our foremost scientists and college professors have made extensive scientific research and what they have brought to light concerning its *deadly effect* should be of interest to everyone. It has been conceded by the manufacturers of aluminum products, that if the residues from prepared foods containing such materials gain access to the blood or are in reality soluble or are absorbable by the body, evil effects to the nervous tissues and other organs would be the result. But they claim that aluminum compounds are insoluble and unabsorbable, therefore they are not absorbed; that they are inert and are excreted by the bowels, without leaving any *deleterious effects upon the human economy.*

Contrary to all such beliefs or statements, it is the writer's opinion that aluminum compounds are *soluble, absorbable* and are *absorbed,* also that they *injure the body;* that they act as a *catalyst* upon all living tissues with which they come in contact. If they are absorbed they are excreted by the bowels, also by the kidneys and urinary tract. In this manner they would come in contact with the reproductive organs and they would become

injured or poisoned by them. Many scientists giving testimony in Docket No. 540, Federal Trade Commission, fully agree with the writer's contention.

It may be well to look into the record of the findings of various investigators who are authorities upon such matters. In searching for scientific statements, any quantity of them can be found regarding the action of alumina or aluminum compounds upon the human anatomy. In the records printed before 1874 (Allen's Encyclopedia of Materia Medica) the reader can find that various scientists had observed the great absorbing power of the drug, causing constipation and lack of secretions in all of the glandular system, producing a general dryness in the body. It was noted that baldness is largely caused from lack of secretion upon the scalp and that constipation and various nervous diseases were due to the lack of proper glandular functioning—in fact, thirty-three pages of the work are devoted to the subject of aluminum poison-provings, this being printed long before the metal was used in alum baking powders or aluminum cooking utensils. Various aluminum manufacturers now claim that the poison is contained in the alloys used by other aluminum manufacturers and that their own products are pure aluminum, therefore what they make is non-poisonous. To disprove any such misstatements of fact concerning poisons from *alloys* in aluminum dishes, the writer makes the above reference.

In later scientific medical works, voluminous references are made to the poisoning, by aluminum compounds, of the reproductive organs, especially the *irritating effects upon the mucous membranes.* The following excerpt is from *Physiological Materia Medica,* page 56, by Wm. H. Burt, M. D., 652 West Washington Street, Chicago, Ill. This book was published in May, 1881.

"ALUMINA"—

Aluminum.

HABITAT—

Europe.

MINERAL—

Triturations.

THROUGH THE CEREBRO-SPINAL NERVOUS SYSTEM, ALUMINA HAS TWO SPECIAL CENTERS OF ACTION.

1. Mucous Membranes—Great Dryness of the Secretions.
2. Cerebro-Spinal Nervous System—Profound Prostration.

MUCOUS MEMBRANES—

Alumina through the spinal nerves, especially acts upon the colon and rectum, producing great dryness of their secretions, and obstinate constipation. It also acts similarly upon the mucous membranes of the uterus and vagina, producing congestion, with dryness, followed by copious leucorrhoea.

CEREBRO-SPINAL SYSTEM—

"Aluminum produces most profound prostration of the animal nervous system."

Another quotation is from *Materia Medica and Therapeutics* by A. C. Cowperthwaite, M. D., Ph. D., LL. D. Following is the "introduction" given the subject of alumina in the Seventh Edition of this volume, which was entirely revised and published in Chicago, January 1, 1896. Page 37.

"ALUMINA (PURE CLAY—ALUMINUM)

GENERAL ANALYSIS—

Alumina affects directly the motor nervous system, giving a paralytic condition, but it shows its most specific action upon the mucous membranes, and of these the intestinal and vaginal are principally involved. The condition seems to be that of extreme dryness and lack of secretion, with more or less irritation."

We are often deceived in the first stages of aluminum

poisoning. Patients look well and are able to digest large quantities of food, therefore those suffering from aluminum poisoning do not become thin but gain in weight instead. Such persons usually have indigestion and resort to the use of "Baking Soda" to be relieved of "Gas in the stomach." The upward "gas" pressure from the stomach upon the circulatory system may be one of the principal causes of so much apoplexy, which is quite prevalent among our people. This often happens before the second stage of the poisoning takes place or later, when cancer develops. In discussing the effects of the salts of aluminum upon the digestive organs, the reader will find in Allen's Encyclopedia of Pure Materia Medica, this statement:

> "He is always hungry; could always be eating; aversion to meat; heartburn after supper; drawing pain at the stomach, etc."

The writer observed these symptoms from the same kind of poisons, fifty-two years after Dr. Allen had noted them. He found that patients who consume aluminum compounds extensively have contracted diseases of the epithelia tissues, such as gum tissue, lining of throat, stomach and intestines and that this inflamation superinduced hunger. Question No. 48, page 35, in "*An Opinion Upon Aluminum*" 1926, is as follows:

> "Is it not a fact that when aluminum hydroxide from aluminum cooking utensils is taken into the stomach, that one is hungry most of the time. and will frequently partake of food, to be relieved from soreness in the stomach? Does the aluminum hydroixde absorb the hydrochloric acid and thus produce abnormal hunger?"

Further perusing Dr. Allen's work we read of the effects of aluminum compounds upon the reproductive organs.

> "Urinary Organs—Violent tenesmus of the bladder, pressure and drawing in the region of the

bladder, especially at the neck of the bladder, etc."

Scientists in later years made observations and publicly recorded them. Dr. Arthur R. Cushny published the following quotation in Philadelphia, Pa., in 1906. He noted that aluminum acts as a general poison upon the *brain* and *nervous system* and that the drug *was found in the urine.*

> "Aluminum has a very remarkable general action when it obtains access to the blood. In Siem's experiments on animals, the sodium-aluminum lactate or tartrate induced a very slow intoxication, mammals never dying from the effects sooner than one or two weeks after the intravenous injection of the salts. In frogs the symptoms were those of a descending paralysis of the central nervous system, the heart and the peripheral nerves and muscles being little affected. In mammals, the first symptoms appeared only after three to five days, and consisted in *constipation,* rapid loss of weight, *weakness, torpor, vomiting;* marked abnormalities in movement and sensation were observed later, such as *tremor, jerking movements,* clonic *convulsions,* paresis of the hind legs, anaesthesia of the mouth and throat and lessened sensation all over the body. Before death, diarrhea often set in and albuminuria was generally present. The *mucous membrane* of the stomach and bowel was found swollen and congested, the *kidney* and *liver* has *often undergone fatty degeneration* and *hemorrhages* were found in the renal cortex. Albuminum was found in the urine."

(ACTION OF ALUMINUM COMPOUNDS UPON HUMANS).

> "Like the other members of the heavy metal series aluminum therefore acts on the *bowel* and *kidney* in *general poisoning,* while many of the symptoms *point to a direct action on the brain.*

> Dollken has recently confirmed Siem's results, and showed that the *nerve cells* and *fibres* of the cord and medulla undergo *degeneration*, particularly those of the *lower cranial nerves.*"

By examining the records we find noted and published in England much the same characteristic symptoms from aluminum poisoning as quoted above. It is probably true that some of the particulars may be lacking in the following report but the essentials are quoted and it is of considerable interest to observe the similarity of the articles reporting the findings of scientists in America in 1906 pertaining to animals and those made in Europe in 1921, regarding man. Here also the brain and nervous system, including the reproductive organs, are reported affected.

Taken from "*The Lancet*" (*Royal Medical Journal*), June 1921, page 1301.

CASE OF ALUMINUM POISONING

By John Spofforth, L. R. C. P. Edin, M. R. C. S. Eng.

> "I was recently called to see a man, aged 46, who was then employed at a firm of metalworkers. He was in a state of great exhaustion and suffering from very severe and persistent *vomiting.* The pulse was slow and irregular. I suspected metallic poisoning and later sent a specimen of his urine to Messrs. Thomas, Newman and Bourlet, analytical chemists, who reported that it contained a large amount of aluminum, also of phosphates. The patient said that he had been dipping red-hot metal articles, contained in an aluminum holder, into concentrated nitric acid. Aluminum produces a rather slow *intoxication.* In this case it caused *loss of memory, tremor, jerking movements* and *incontinuence of urine.*"

Various scientists have taken the subject of aluminum poisoning seriously. After discovering the poisonous effects of aluminum compounds upon the human body, they decided to make further investigation of the

matter and made exhaustive scientific research, to determine the facts also the effects upon living animal tissues. What they have found true regarding the effects of such compounds upon animals would have a similar or like effect upon man. Much time and money has been expended to secure such data and the writer believes the facts obtained by the five scientists whose quotations follow, will be of immense value to the human race. Among these investigators are found such persons as Philip B. Hawk, Ph. D., Physiological Chemist; and Clarence A. Smith, Physiological Chemist, Jefferson Medical College, Philadelphia, Pa. Dr. Hawk is quoted as follows:

> "We had in all 36 rats, dividing them into six groups of six each. Three groups of six rats each were fed on the alum biscuits, and three groups of six rats each were fed on the tartrate biscuits. We found in a general way that the rats eating the alum biscuits grew less rapidly and satisfactorily than did the rats eating the tartrate biscuits. We found that the rats—they were all females—became pregnant sooner on the tartrate powders and they gave birth to more litters and to a larger number of individual rats in those litters. Of the eighteen alum rats, only *eight* became pregnant, whereas *ten* of the tartrate rats became pregnant. Of the progeny there were 54 from the alum experiments and 76 from the tartrate experiments. My interpretation of these results was that the feeding of biscuits made with alum baking powder interfered with the growth of individual rats, caused *delay in pregnancy* and the bearing of *fewer young.*"

DR. C. A. SMITH'S TESTIMONY

"Dr. Smith assisted Dr. Hawk in the experiment above quoted and testified that the fecundity of the tartrate rats was over 40% greater than that of the alum rats. The young tartrate rats

grew somewhat more rapidly than did the alum rats."

Dr. Wm. Gies of Columbia University has devoted particular attention to the matter of aluminum—its physiological and like effects, since the year 1904: Dr. Gies, Dr. Hattie Hoeft, Physiological Chemist at Teacher's College of Columbia University and Dr. Maxwell Karshan, another Physiological Chemist, all gave substantially the same testimony before the Federal Government regarding the effects of aluminum compounds, after their various experiments. Like Dr. Philip Hawk and Dr. Clarence Smith, above quoted, their experiments were made upon animals to determine like effects upon the higher animals. The various experiments were for different purposes. Quoted here are the first, second, third and fourth which were made by Dr. Gies to determine the effects of aluminum compounds upon the growth of the body and effects upon the *reproductive organs.*

> "Four groups, each group containing six to eight rats, were selected for experiments on growth. Biscuit leavened with yeast, phosphate baking powder, tartrate baking powder, alum baking powder were used, and with the exception of the leavening agency in the biscuit, the food of the animals in each group was identical. The diet from Monday to Saturday inclusive consisted exclusively of biscuit. Cheese and cabbage, but no biscuit, were fed each Sunday. The experiment lasted from February to October, 1920. The diet was undoubtedly deficient in nutritive value, but all the animals fared alike.
>
> At the end of 55 days, the yeast rats had gained 106 grams, tartrate 97, phosphate 95 and alum 76. All of the animals seemed to be normal throughout the experiment except those of the alum group. Mild diarrhea was occasionally apparent with the alum group. Five or six rats of the alum group exhibited marked symptoms of aluminum poison, namely, disco-ordinated movements, tremor and awkwardness in the use of the

hind legs. These symptoms gradually diminished in severity but four or five days later, tremor and paralytic conditions reappeared, followed by weakness and vomiting. This was followed by gradual recovery during the following six days. Unmistakable symptoms of direct aluminum poisoning occurred as noted, and must be ascribed to the use of biscuit made with ordinary yet typical alum baking powder.

In a second experiment, 36 female rats were divided into four groups, the food being the same as in the former experiment except that yeast was not used and a phosphate powder introduced in its place. The gain in weight of the various groups after 63 days was phosphate (b) rats 56 grams, tartrate 52, phosphate (a) 46 and alum 25, which showed a striking deficiency in the nutritive quality of the alum biscuits. The deficiency of the alum biscuits was clearly a matter of positive poisonous quality. The rats in the alum group ate less per day than the rats of any other group although the same quantity of food was before them. No observed symptoms of acute toxicity in this experiment.

These rats were carried into a third experiment, the purpose of which was to study the effect of alum baking powder compared with phosphate and tartrate baking powder on reproduction, fecundity and normality of the offspring. Feeding continued as before. The results were, fecundity of rats in the alum group was lower in degree than that of the rats in the other three groups. Only four of the six rats in the alum group gave birth to litters, one of the six dying pregnant, the other non-pregnant. All the rats of the other three groups bred normally and survived in good condition. The offspring of the rats of the alum group were *smaller* in *number* per litter, *smaller* in *size* at birth and *smaller* in *size* at the age of one month. It is obvious that the diet of the alum biscuits markedly interfered with the *normal on-*

set, progress and outcome of *pregnancy* and noticeably impaired the nutrition of the offspring of otherwise healthy and prolific Albino rats.

A fourth experiment, duplicated in everything except that this was conducted on male rats. At the end of the 58th day, tartrate rats gained 93 grams, phosphate (b) 88, phosphate (a) 82 and alum 53. No observed symptoms of acute toxicity. Alum rats less active and more somnolent. The relative ineffectiveness of the biscuit leavened with alum baking powder was due to *direct toxic action,*—not the deficiency of nutriments in the biscuits. This direct toxic action was due to one or more soluble aluminum compounds or sulphate by-products or both."

If the ductless pituitary gland is affected by the ingestion of aluminum compounds, which affected materially, the growth of the animals under observation, as noted by the above five scientists, is it not reasonable to believe that other ductless glands will suffer like effects from such poisons? It is also evident from the above quotations that such glands as the ovaries and testees suffer like or similar damaging effects from such ingested poisons, and that they often become diseased, to the extent, in some instances, that *reproduction of their species is prevented.* If aluminum compounds, when consumed, have such powerful effects upon adult persons, what must be the effect upon growing children of school age? Is it any wonder that many thousands of our children between the ages of six and ten years, are too nervous to attend school in this country?

Dr. Harry G. Wells, Pathologist of the University of Chicago, has made an extensive examination of the effects of aluminum compounds upon various forms of life including the higher animals. He not only has given the information that the blood, nervous tissues, kidneys and other parts of the human anatomy are poisoned or destroyed by aluminum compounds when they gain access to the body by absorption from ingested foods but that they affect the reproductive organs *first,* even before

any symptoms are shown or are in evidence upon the other organs of the body. Dr. Wells states:

* * * * * *

> "Aluminum has been found to produce injury, especially to the kidney; in the observations of physicians, aluminum compounds taken by men not only produce injury to the digestive tract, but *injury* to the *nervous tissue.*" * * *
>
> "In my opinion, the effect of aluminum compounds, the passing into the human system by absorption would make themselves felt in the *reproductive organs.* The cells of these organs are particularly sensitive to the action of any poisonous substance and often show *marked changes* when changes in other parts of the body are undiscoverable even by *careful microscopic studies.* My opinion is that aluminum compounds are poisonous to all forms of life, *including the higher animals.*"

It seems to the author that the above statements quoted should not be of interest to professionals only but that the laity in general should be interested in such scientific examinations as they are also vitally affected. It is evident from the record that aluminum compounds affect the female organs to a larger degree than those of the male, that their effects are injurious to all the glands of the body causing them to be diseased or impaired, sufficiently to cause sterility—oftentimes in young people.

It is the writer's opinion that various ductless glands cannot readily rid themselves of aluminum compounds and they become swollen or permanently enlarged. The thyroid and pituitary are in this class. Also that impaired functioning of such glands has a direct effect upon the brain and the entire nervous system, as well as upon the growth of the body, which was noted above by five of our foremost scientists. Goiter has become so prevalent since aluminum compounds have been so widely consumed, that an editor of a prominent health magazine in Chicago, recently published an extensive

article under the caption: *"Have you had your throat cut?"*

The experiments, of the five scientists quoted above, were made with various kinds of materials (aluminum compounds) which are usually used in the manufacture of alum baking powders, offered for sale in many of our shops.

It may be of interest to the reader to know that most of the symptoms noted by the various scientists quoted, regarding the deleterious effects of alum baking powders were also observed by the writer in his investigations with his patients when they consumed foods which were cooked in *alum*inum utensils. This proved of extreme interest and further investigation disclosed that alum dissolves from *alum*inum dishes which becomes part of and contaminates all foods with poison, which are cooked therein. An experiment anyone can make will prove this. Take ordinary city faucet water or drinking water —boil it one-half hour in any aluminum dish, then pour the boiled water in a clear glass can or fruit jar—twirl the can gently after the water has been cooled and the poison can be seen with the naked eye. This finding is absolutely contrary to all popular opinion concerning aluminum cooking ware. This fact should attract the attention of all users of such ware, lest they may have made a serious mistake in employing it in their homes.

A recent discovery by Dr. Wm. Koch, Scientist of Detroit, Michigan, and Dr. Charles L. Olds,* of Philadelphia, Pa., proves that the results of eating poisons made by aluminum kitchen utensils were inimical to those made from the use of alum baking powders upon cancer patients. This corroborates the investigations of the writer—that aluminum compounds are equally as poisonous when ingested from aluminum cooking ware as those produced from alum baking powders. Their effects or injury upon the organs of the human body may be as marked as those noted upon animals by scientific experiments, reported in 1926-1927.

There are eight asylums for the insane in the state of Ohio alone, not to mention many other hospitals and

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*Refer to Page 22.

sanatariums for the feeble-minded, etc. If the consuming of such amounts of alum, dissolved from *alum*inum cooking utensils, *alum* in baking powders and *alum* in city drinking water, etc., is, to a large extent, the cause of such *nervous disorders, impotency, sterility* and *insanity,* prevalent among our people, the writer believes it high time that the public be appraised of the facts and that proper steps should be taken to remove such a *plague from our people.*

Two years have passed since all these facts were placed before our Federal governmental authorities, yet aluminum has been made the standard equipment of the United States Army. **There must be a powerful influence at work, somewhere, which has kept these truths from the public.**

(Italics mine—Betts.)

Aluminum Baking Powders

ARE ALUMINUM BAKING POWDERS POISONOUS?

BAKING POWDER SITUATION PRIOR TO AND IN 1900.

IT IS evident that some years prior to the year 1898 there had come upon the market a number of baking powders which used as a substitute for cream of tartar either potash or ammonium alum. Sometimes one of these alums was used by itself and at other times in combination with cream of tartar. The alum acid ingredient of the powder was relatively ten times cheaper than the acid ingredient of a cream of tartar powder and consequently the new powders could be put upon the market at a much less price than could a baking powder using as its acid ingredient cream of tartar. The officers of the cream of tartar powder companies found themselves confronted with a situation which was becoming quite serious and they were compelled to choose between two courses:

1. To substitute a cheaper acid ingredient, namely, alum, for the more expensive, and compete in price, or

2. To make known the difference between the two acid agencies and then compete in quality and excellence.

They, therefore, made an investigation of the unwholesomeness of alum, obtained all the evidence they could on the subject of alum, obtained the opinion of a number of well-known and well-recognized scientific men and having obtained that evidence, determined to adopt the second course as outlined above, and they thereafter obtained space in newspapers and magazines both for

advertising matter and for reading notices and distributed pamphlets and cook books in which they set out, as shown above, the unwholesomeness of alum and that it was a substance deleterious to the human system. This policy they pressed vigorously.

STATEMENTS IN SCIENTIFIC LITERATURE REGARDING ALUM.

At that time, which was between 1876 and 1889, in the literature and common understanding of man, alum was a thing which no one would think of eating. Its introduction into foods as an adulterant had been made a crime in many countries centuries before. It was classed in the literature almost without question as a *corrosive poison*, as *irritant to mucous membrane*, as *unwholesome* and *harmful* in *human food*. There appeared at that time little in the literature to suggest any doubt about it.

FROM 1900 TO 1914 THERE APPEARS TO HAVE BEEN NO PRONOUNCED CHANGE IN THE TENOR OF SCIENTIFIC EXPRESSION.

*After 1914, and after the appearance of Bulletin No. 103** of the Agricultural Department, the cream of tartar companies continued to disseminate statements alleging that alum in baking powder was unwholesome and might produce deleterious results when used daily over long periods of time in food. Many other experiments were conducted on animals and on men. *Many scientists disputed the conclusion reached or alleged to have been reached by the Referee Board. The Medical Journals* and, to some extent, the *press* of the country, devoted considerable space to a discussion of this subject.

It may be well to examine the record to learn how many companies are operating plants for the manufacture of baking powders and the various kinds made. Of 115 organizations manufacturing such products, 112 are labeling their goods in various states as "alum" or

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* Bulletin issued by the Referee Board of Consulting Scientific Experts, Washington, D. C.

"alum phosphate", etc. Only three are in the tartrate (tartaric acid) class. There are a small number of manufacturers making what is known as "phosphate baking powders." These combined with the tartrate manufacturers make about 20% of the total output for the United States. Therefore 80% of all baking powders produced are in what is known as the "alum" class.

The latter or "alum" class produced about $62,000,000 worth of baking powders in 1926. The consumption of this make of powder necessarily would have to be calculated by dividing it as a whole among all our people, even though much of it is sold in barrels to manufacturers of food products. The balance is sold in 10-cent, 15-cent or higher priced cans. A 10-cent can usually contains eight ounces. Using a 10-cent can of powder as a basis of the whole, $62,000,000 would purchase about 620,000,000 cans or 4,960,000,000 ounces of alum baking powder.

The writer is informed that in an eight ounce can there is about 2 1/3 ounces of aluminum (metal) sulphate (sulphuric acid). This substance would make a total (without the other ingredients in the cans) of 620,000,000 times 2 1/3 ounces or approximately 1,450,000,000 ounces or 120,833,333 pounds or 60,416 tons. This would mean an average consumption of 1000 tons of aluminum sulphate for every $1,000,000 of American money spent for aluminum (alum) baking powders.

There are approximately 31,000,000 families in the United States, and they consumed practically all this substance. This would prove that an average of $2.00 per family was spent in 1926 for alum baking powders, making 46 2/3 ounces of the poison used per family. There is an average of four persons per family (including children). Evenly dividing the above amount would show that every human being of America would receive an average of 12 ounces per annum or one ounce per month, and this from only one of the main sources, (baking powders.) Nothing is said here about *alum* from *alum*inum cooking utensils, *alum* in city drinking water and *many other sources from which we ingest the drug.*

Adulteration of baking powders began many years ago. The material used had the same appearance of that of which the tartrate baking powders were made. This was so cleverly manipulated that the only way possible to detect whether or not the substance was in baking powder was to make a chemical analysis. This was not often done and the adulterators were little molested by officials, whose duty, it seems to the writer, *should have been to protect the public as has been done in practically every civilized nation on earth.* This item is from Western Medical Times, August 1927, by Dr. Wm. Held, Director of the United States Health League.

> "Germany, France, Belgium, Great Britain, Switzerland, Czechoslovakia, Hungary and Brazil prohibit the use of aluminum compounds in food stuff, including alum in baking powder. It will hardly be doubted that the named countries are progressive and have at their command the service of expert chemists, pathologists and medics who, no doubt, were consulted before the enactment of these laws which aim to protect and preserve the people's health.
>
> What is the reason that in our own America, with its great aluminum industry, which sold over *one hundred million dollars* worth of aluminum, aluminum compounds in foodstuffs are permitted; what is the reason that all of the protests and warnings of men who know the facts of aluminum poisoning, fall upon deaf ears; that nothing has been done to stay the death-dealing effect of aluminum?"

Contrary to this, manufacturers of alum baking powders became so bold that many still claimed that they did not use *alum* but a harmless substance called sodium aluminum sulphate. The question was brought before our national officials. Dr. Harvey Wiley was at the head of the Chemistry Division of the Agricultural Department. These men wanted to have a legal right to manufacture baking powders with alum and they well knew that such an outrage could not be perpetrated upon the American people over Dr. Wiley's signature, so an ap-

peal was made over his head to the President (Theodore Roosevelt) for the appointment of a commission or board of scientific consulting experts to investigate the physiological effects of various baking powders. Their request was granted and the appointment was made in 1908, of the so-called "Remsen Board," by the President. This board functioned for six years and its decision was made a part of the present existing ruling of our Government's Chemistry Division.

Why was it necessary to get this work done outside the chemistry department with such efficient men in office as Dr. Harvey Wiley? The author suggests that the reader investigate and learn who made the request to Roosevelt for this unusual procedure. It may interest the reader to know that this Board of Consulting Scientific Experts, composed of Dr. Russell H. Chittenden, of the Sheffield Scientific School, Yale University, New Haven, Dr. Alonzo E. Taylor, of the Medical School of the University of Pennsylvania, Philadelphia, Ira Remson, President of John Hopkins University, John H. Long, Professor of Chemistry in the Northwestern University Medical School and Theobald Smith, Professor of comparative pathology in Harvard University, decided that the evil effects from one baking powder was no more harmful than from any other baking powder. There was no decision made that they were harmless, in fact, the closing statement of the writer of the report is quoted as follows: "In short, the board conclude that alum baking powders are no more harmful than any other baking powders, but *that it is wise to be moderate in the use of foods that are leavened with baking powder.*".

It may further interest the reader to know that it is quite impossible to get all the facts pertaining to our Chemistry Division. But coincidences do happen. After this board had been functioning for four years and it became evident to the Chemistry Division, under Dr. Harvey Wiley's direction, that their findings would be written into the laws of our land, Dr. Wiley resigned.* Shortly after his resignation, as suspected, the board's findings were placed as a part of the Chemistry Divi-

*Read Dr. Wiley's statement, Page 141.

sion's present ruling, as above stated, thus making America practically the only civilized nation on earth, having such a privilege granted to make use of alum in the manufacture of baking powders.

Since 1914 the number of manufacturers of alum powders have greatly increased as has also the quantity of aluminum compounds produced, while practically all other civilized nations have eliminated the substance from their food products in every form, in which it was found. There may be powerful agencies at work to produce such opposite conditions as above stated.

The writer has long since believed that *alum* baking powders are poisonous. Investigation has proven that many of our foremost thinkers are also of the same opinion. A few health book publishers are frank in the matter and make positive statements regarding the poison. The following quote is taken from "*Complete Life Building*", page 52, issued February 1928, by the Ralston Health Club, Meriden, Conn., and gives the reader some idea of the prevailing statements now being published.

"BAKING POWDER

> Following the recent statements concerning foods that can be eaten when not in the form of cell growth, we find that baking powder is necessarily composed of such foods when it is safe to take at all. But most baking powders now on the market *are real poisons. They eat the lining from the stomach*, or damage it until congestion and inflammation follow. More than one hundred million pounds of baking powders are used in the United States every year; and of this vast tonnage less than one million pounds can be said to be free from *dangerous poisons.* The severest of these powders are *those that contain aluminium*, which is the *disguised name for alum;* and those that contain ammonium, another disguise for ammonia. *Appendicitis can be traced to these poisons.*"

Many professionals claim that "an individual can

favor aluminum utensils and at the same time be consistent in opposing the use of alum in baking powder because alum is a complex compound, being made of aluminum potassium sulphate." Aluminum baking powders now and for many years, have not been made with aluminum potassium sulphate. *Sodium aluminum sulphate is used instead.* However, the principal poisonous element, in the author's opinion, is the *alum*inum and not the potassium, ammonium or sodium. When either salt or soda is used for seasoning foods during the cooking process in *alum*inum ware, the same kind of poison is produced in the food as is made by baking powders containing *sodium aluminum sulphate.* It seems incredible that any health expert could possibly advise a person not to use baking powders containing aluminum compounds, and still be consistent in advising his readers to eat the same aluminum compounds in smaller quantities, as formed by aluminum cooking ware. This kind of reasoning would give one to understand that a bite from a ten year old rattlesnake is apt to be poisonous and should be avoided while a bite from one three years old, would not be poisonous, because the person bitten would receive a smaller amount of the poison. The writer does not agree with them that we can consume poisons of this character in small amounts without evil or cumulative effects upon the body.

Dr. Harvey Wiley is of the opinion that aluminum in baking powders is consumed in such greater quantities that the amounts ingested from aluminum kitchen utensils are insignificant in comparison—but he says if aluminum utensils produce such damage as this writer represents, he wants to know it. The writer is pleased to present here—Dr. Wiley's opinion, because it is in perfect harmony with his views upon aluminum baking powders. His opinion cannot be misunderstood.

> "The *case* against the Royal Baking Powder Company* has developed the source of nearly all the aluminum which enters the stomachs of the American people. I imagine, without having stopped to make *any computations,* that where one

*Page 90.

gram of aluminum enters the stomachs of the American people from the aluminum vessels used in cooking, five thousand grams enter the stomachs of the American people from the use of alum baking powders. I have been told by those who are more or less acquainted with the statistics of the use of baking powders, *that at least 80% of all the baking powders used in the United States are made of alum. I believe it would be a step towards proper nutrition if these facts could be brought out, and I am pleased to note that you are endeavoring to place these facts before the American people.* At the same time, the extremely minute quantities of alum entering our stomachs through the abrasion of the aluminum cooking utensil as compared with the total amount derived from alum baking powders do not require any particular stress.''

* Certain manufacturers of alum baking powders claimed in this case that they did not use alum but a harmless compound called *Sodium Aluminum Sulphate* in their products. They invoked the aid of the Federal Trade Commission of the United States to compel the Royal Baking Powder Company to desist from stating, in its advertising matter, that Royal products contained no alum, etc. The Commission decided there was no cause for action against the ''Royal'' Company—after a thorough examination which covered a period of about six years, the case was dismissed on March 23, 1926.

In my opinion, when such quantities of aluminum are consumed, as is contained in baked goods, when aluminum baking powders are used, and as dissolved from aluminum cooking utensils, during the cooking process, we have the cause of that which makes gas in the stomachs and bowels of about 75% of all adults of the American people, also, what causes *mineral acid food poisoning* at so many banquets, etc. I refer you to the poisoning case at Kansas City, Kansas, in which approximately 150 were poisoned at a Parent-Teachers banquet, on February 17, 1927, mentioned elsewhere in this book.*

*Page 115.

These substances apparently affect children and young people to a larger degree than those of maturer age and especially do they affect the nervous system of children. In late years many mothers have mentioned how their infants cry incessantly. In such cases the mother usually uses aluminum, in which the food for the infant is prepared. The nervous condition of the child is usually corrected within twenty-four hours after aluminum is avoided in the preparation of the child's food. Statistics show that many thousands of children between the ages of six and ten years are too nervous to attend school in America, since aluminum compounds have been so widely consumed. The writer believes the eating of various aluminum compounds may be the direct cause of the extreme nervous condition of our young people, in fact, it is generally discussed today, whether or not our children are better or worse than the previous generation. That aluminum compounds have physiological effects upon nervous tissue is so stated by scientists quoted elsewhere in this book.*

HUMAN ANATOMY ABSORBS POISONOUS ALUMINUM COMPOUNDS.

The metal dissolved from aluminum dishes and the residues from baking powders, etc., combine with the acids or alkalies in the foods or the alkaline juices of the body, and the material formed by their union is a salt, usually known as alum or aluminum compound. When no alkalies are in the foods to combine with the aluminum, the substance is then known as aluminum hydroxide or hydrate. When these substances are redissolved by the hydrochloric acid of the gastric juice, aluminum chloride is formed. Aluminum chloride is a powerful narcotic acid poison, so stated by Dr. Herbert Snow, M. D., in the Chicago Daily News, October 17, 1912.

The writer has been of the opinion for many years that such aluminum hydroxide or compounds are poisonous and not fit for human consumption on account of the action of such chemicals on the digestive tract, especially that of aluminum chloride after absorption. The hydrox-

*Race Suicide—Page 69.

ide may exert a *tremendous absorbing power which,* when taken internally, may cause a *constipating effect,* as noted elsewhere in this book. Such material is not a food product, neither is it a necessary constituent part of the body.

In this book the writer presents evidence that aluminum hydroxide and other alum compounds are protoplasmic poisons (protoplasm is the principal substance of our life cell): that such material is a catalyst:* that it has a corrosive (burning) action on living tissue and that bacteria may act on the dead tissue produced and ulcers may form from their action on such tissue: that living tissue may be added or living tissue may be taken away by its use, etc.

AN INTERESTING TEST OF ALUMINUM

Aluminum is a catalyst in action upon the animal body. Make the following test—Take an ordinary metal testing stone: scratch platinum in one place, aluminum in another, copper in another, silver in another, etc. Place pure nitrate of muriatic acid over all the metals. Platinum and aluminum remain undissolved by the acid: all the others disappear. The nitrate of muriatic acid is more powerful than any fluids of the digestive tract. It has no immediate effect on the metal aluminum—then how is it possible for the animal body to assimilate such a substance? The reverse is true. Aluminum absorbs the acids of the stomach, which is man's greatest protection from various poisons. It is a serious matter when this occurs: the cells of the digestive tract are killed: man's vitality is usually lowered to the extent of the death of the endothelial cells. When these cells have once been poisoned by aluminum or poisons of a similar nature, the person poisoned usually develops an idiosyncrasy for such poison and very small amounts are apt to show their effects.

Aluminum therefore poisons its victims and still remains unchanged—a catalyst in the body: that it causes

* Catalystic action is a decomposition and new combination supposed to be effected by one substance acting upon a compound body, itself remaining unchanged.

"local lesions" due to "chronic irritation" is testified to by various scientists quoted throughout this book.

Prof. M. Slye, of Chicago, Ill., has been working for many years along scientific lines to determine the cause of cancer. The following quotation is given as a conclusion reached upon the subject of the disease, it being caused by irritation or chronic irritation of the tissues.

NEW YORK SUN—NEW YORK CITY—FEBRUARY 8, 1926.

PROFESSOR M. SLYE, CHICAGO, ILLINOIS.

> "Cancer is not contagious and apparently two factors are necessary to produce cancer. One is inherited susceptibility and the other is irritation of the right kind applied to cancer susceptible tissues. * * * That avoiding *chronic irritation* of locally susceptible tissues will do much toward *avoiding cancer.*"*

Is it not reasonable to believe that aluminum compounds, being protoplasmic poisons which precipitate in the body, will lower the vitality or resistance of the body when persistently used to a certain point where it is unable to properly repair the lesion (sore) and cancer results? At least we could stop the source of such lesions as aluminum compounds are stated to produce by avoiding them in our foods.

(Italics mine—Betts).

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*Read XVI.

ALUMINUM PRECIPITATION

DO ALUMINUM COMPOUNDS PRECIPITATE IN THE HUMAN BODY?

GASES containing the ions from various heated metals are poisonous when taken into the lungs. Aluminum is used in alum baking powders for the purpose of producing gas, so it seemed probable to the writer that a gas would be generated upon the metal surface of aluminum cooking utensils during the baking or cooking process, due to the high temperature. Investigation proved that hydrogen gas in its pure state (as it comes from the mouth of volcanoes) containing the aluminum ion, is set free during food preparation. Sufficient quantities of the gas are produced during the baking process not only in ovens, but also upon the surface of a griddle, so that foods will not adhere or stick to the dish. This particular gas has a great affinity for atmosphere and readily escapes from the food product unless the foods are eaten hot.

Many of our late inventions in the culinary line are are of the type of cooking without water in what are known as "fireless, waterless and high pressure cookers." When such cookers are opened, the poisonous gas escapes into the room. The gases are taken into the lungs and may be precipitated and cause mineral poisoning to the body.

The question is again raised—whether or not ordinary aluminum (*alum*) when taken by mouth, is absorbed into the body and whether aluminum compounds are precipitated and become solids in various parts of the anatomy. Kidney and gall stones have become so prevalent since the use of aluminum in its various forms, that thousands upon thousands have their gall bladders drained at regular intervals. Kidney stones are not so easily treated. The writer has found persons who have

had a hard, whitish substance removed from the walls of the rectum. This matter was of particular interest to the writer and caused a further investigation of the official record at Washington, to learn if his suspicions were correct regarding the precipitating action of aluminum compounds in the human body.

The writer will here quote four scientists whose testimonies appear in the record. Another can be found on page 75 noted by Dr. Spofforth in "*The Lancet*", 1921. In this case the patient was evidently poisoned by breathing fumes generated upon the surface of the metal aluminum holder which he used in his work. The statements here quoted are in scientific language but the writer believes they can be well understood by the average laity. These four testimonies prove beyond a question of a doubt that aluminum compounds precipitate in the human body. To prove this fact four scientists were brought before the Federal Trade Commission to give their testimony.

LESTER C. HIMEBAUGH

Bio-chemist. Bacteriologist. Director, Bio-chemistry and Bacteriology, Pease Laboratories, 39 West 38th Street, New York City.

> "Employing a standard method of tests upon living bacteria in colloidal medium (Standard beef extract agar) simulating that of the body, the action of six aluminum compounds upon pus forming bacteria was observed to be approximately the same. The organisms although given most favorable opportunities to grow,—having proper food material and temperature, conditions, were prevented from growing and killed over a considerable area extending out from the center of the cup plate as compared with controls in which good growth was observed throughout. The germicidal power of these salts each in concentrations of 0.135% of aluminum was shown to be approximately the same as a 2% solution of carbolic acid."
>
> "Employing a standard method, different dilutions of aluminum salts, P. A. S., S. A. S., A. A. S.

and aluminum sulphate ranging from 135 to 1350 parts per million of aluminum in a large number of tests were observed to retard the growth of living tissue cells from the heart of the unborn chick, ammonia alum being slightly more toxic than the others, the concentration of 1350 parts per million producing death."

" 'Agglutination is a process in which the corpuscles seem to adhere together in bunches.' "

" 'Approximately forty per cent of those blood corpuscles were destroyed or haemolyzed so that the coloring matter came out into the solution.'

" 'Something happened to those corpuscles as the result of the sodium aluminum sulphate in this case which prevented the well known haemolyzing agent, saponin, from entering and breaking them up and producing an haemolysis.'

" 'This combination of the aluminum salts with the blood corpuscles evidently prevents a full primary haemolysis.' "

"Himebaugh showed by tests with agar cup plates that when aluminum sulphate was added to whole blood there was some slight prevention of growth of bacteria indicating that the aluminum was not permanently combined with the blood. And when the corpuscles were separated from the serum and tested there was no prevention of growth indicating that the aluminum was combined with the corpuscles in such a way that it would not penetrate the agar. But when the serum alone was tested there was a prevention of growth similar to that noted when aluminum sulphate alone was tested. About twice as much aluminum was found in the blood corpuscles as was found in the blood serum.

"When blood serum was mixed with the beef extract agar and aluminum sulphate placed in the center, penetration was observed, growth of the bacteria was prevented to a similar degree as in the case of aluminum sulphate without the presence of blood serum."

LEWIS V. HEILBRUNN

Ph. D. General Physiologist. Instructor, Department of Zoology, University of Michigan, Ann Arbor, Michigan .

"Employing a standard method of great delicacy for measuring changes in the viscosity of protoplasm, it was first observed (1921) that in seawater 27 parts per million of aluminum as aluminum chloride coagulated the protoplasm of sea urchin eggs but no effort was made to separate the effect of the acid developed. In later experiments from one-half to one part per million of aluminum in salt solutions, was observed to markedly increase the fluidity (about 400 per cent.), the effect being 1000 times as great as with pure calcium salts. This fluidity was accompanied by increased fragility of the cell membrane which became very brittle and more easily broken. Fluidity prevents the functioning of the protoplasm but recovery is possible.

"Concentrations of about 10 parts per million of aluminum were observed to coagulate the protoplasm, which effect is irreversible and means death.

"Comparative tests demonstrated the aluminum ion is more toxic in these respects than lead, magnesium and ammonium, among others."

FLORENCE B. SEIBERT

Ph. D. Biological Chemist, University of Chicago, Chicago, Ill.

"Employing a standard method, the daily injection of sodium aluminum sulphate and aluminum chloride (in .8 per cent solutions) into the ear vein of rabbits over periods of 20 to 50 days was observed to cause the tissue around the vein to become swollen, edematous, necrotic and inflamed and later even to the extent that certain portions of the ear sloughed off."

" 'Sodium aluminum sulphate, although it was

injected intravenously into the ear vein, caused the tissue around the vein to become swelled, edematous, necrotic and inflamed, and later even to the extent that certain portions of the ear sloughed off.'

"'The rabbits treated with the sodium aluminum sulphate and aluminum chloride showed red cells of abnormal size, abnormal shape and uneven coloring.'

"'This again shows that the red blood cells were more resistant and tougher than they were before treatment * * * although they seem to be less easily broken down by mechanical friction.'"

"When one-tenth of a gram of sodium aluminum sulphate in crystalline form mixed with lactose in capsules was fed to four rabbits daily for forty days there was observed a slight but steady decrease in the amount of hemoglobin (red coloring matter) in the blood of the animals, taken 24 hours later.

"'The animals treated with acid did not show that steady decrease.'

"'The decrease is greater than the experimental error would be.'

"'This was the first symptom which showed up in the cases of the aluminum solution injections.'"

"After daily injections of sodium aluminum sulphate and aluminum chloride into the ear vein of rabbits, abnormally large and irregular red corpuscles of uneven coloring and necrotic and stipple cells were observed."

"The red blood cells were more resistant and tougher than they were before treatment. This increased resistance or toughening of the red cells is shown in certain cases of anemia to go along with an increased fragility of the corpuscles, that is, although they seem to be less easily hemolyzed by these agents, they are more easily broken down by mechanical friction."

"In preliminary tests upon the power of the blood of rabbits to produce protective substances against infection, it was observed that after the injection of sodium aluminum sulphate the animal did not produce the protective substances which tend to hemolyze the red cells of sheeps blood or produce such substances to a much smaller extent than in untreated animals."

ROE E. REMINGTON

Biological Chemist. Assistant Professor of Biological Chemistry, North Dakota Agricultural College, Fargo, N. Dakota.

"In experiments on beef blood and human blood with concentrations of aluminum in 30 and 45 parts per million, ammonia alum, potash alum, sodium alum, aluminum sulphate, aluminum chloride and sodium aluminum sulphate were observed to be toxic to red blood cells, to produce agglutination, crenation or puckering, first to increase resistance of the cell wall to the passage of an electric current followed by a decrease in resistance and greater permeability of the cell wall resulting in loss of coloring matter (hemoglobin)."

ALUMINUM PRECIPITATE IN DRINKING WATER

Make this test: Fill a clean drinking glass with city water in which *aluminum* (metal) *sulphate* (sulphuric acid) is used as a 'purifier'. Pour the water out and let the glass dry by evaporation. Repeat this several times each day for one week. You will find that the substance has burned into and caused a coating to accumulate on the glass. This material cannot be removed by washing. The writer believes that such an extremely small quantity of aluminum sulphate required to produce this effect upon glass, *indicates the presence of enough poisonous aluminum sulphate in the city water to be a real menace to the human body.*

TEST FOR ACTION ON STOMACH CONTENT

The following test is suggested by The Wander Co., Chemists, Chicago, Ill.

"The action of aluminum hydroxide in the stomach may be strikingly demonstrated in a test tube by mixing about 1 gramme of the powder (or two tablets powdered) with about 10 ccs. of water, thoroughly shaking the mixture and then adding 3 or 4 ccs. of dilute hydrochloric acid, again shaking. Almost immediately coagulation of the aluminum hydroxide takes place, the contents of the test tube becoming converted into a thick translucent 'gel.'"

Dr. Morris Fishbein, Editor American Medical Journal, wrote an editorial published in Oct., 1926 (A. M. A. Journal). In his article he gives the reader the information that aluminum does not dissolve from cooking utensils in quantities which can be seen with the naked eye, but that the most delicate chemical tests are necessary to be made in order to indicate the mere traces of aluminum compounds removed from the dish in the cooking process. Not only this but to substantiate his statement he gives as further proof that the Royal Medical Society scientists in England had made tests along this line and that they found also that it required the most delicate chemical tests to indicate the presence of aluminum in food products cooked in aluminum cooking utensils.

THE FACTS ARE

No *chemical tests whatever* are necessary to indicate the presence of aluminum and that, after twenty-five minutes boiling, the quantities of aluminum precipitate can plainly be seen with the naked eye, by making the following test.

> **Boil city or well water in an aluminum dish twenty-five minutes. Place the water in a clear glass jar or bottle—allow it to stand for one hour. Twirl gently with a circular motion and make your observations. Repeating the test in an enamel dish will prove the above statement, as**

the investigator will not see the aluminum precipitate.

The writer is of the opinion that this phase of aluminum poisoning has been much neglected. Very extensive sales of *fireless, waterless* and *high pressure aluminum cookers* have taken place among our populace. Apparently few of such purchasers have knowledge of the facts and are innocently employing the use of such ware, thinking that they are cooking in ideal utensils. **May the day soon arrive when scientists will investigate aluminum precipitation more thoroughly and upon a greater scale in order that all may have the facts.**

(Italics mine—Betts).

Is Cancer on the Increase?

STATISTICS are often dry reading but when they come from the pen of statisticians for insurance companies, such as the Prudential or Metropolitan, they command attention. Many noted medical authorities have given facts and data regarding the increase of disease in the last twenty years, during which time an extensive consumption of aluminum compounds was also noted. That which these scientists have written is also worthy of note. Those quoted here are: Dr. E. C. Folkmar, Author of many medical works; Dr. Alpheus W. Hoyt,* 134 West 74th Street, New York; Dr. G. Fichera, Author, and Dr. Howard Canning Taylor, Managing Director of the American Society for the Control of Cancer. The Prudential Insurance Company's findings were made by Frederick L. Hoffman, LL. D., Statistician, and published in "The Spectator", New York, October 13, 1927. The Metropolitan Life Insurance Company's findings are quoted from "The Cancer Problem" by Dr. E. C. Folkmar, Washington, D. C. Literature, newspapers, medical journals and various printed works of 1926 abound in statements pertaining to the great increase in the incidence of cancer. Gastric disturbance, heart, kidney, liver and bowel diseases have increased at an unbelievable rate. A vast number of medical authorities agree that the increase of such diseases is alarming.

The Metropolitan Life Insurance Company of America issued a pamphlet under the caption—*A Message of Hope*—in 1927, which was approved by Dr. Howard Canning Taylor. Following are two paragraphs taken from this pamphlet:

"CANCER—THE UNIVERSAL MENACE!

More people over 40 years of age die of *cancer* than of pneumonia, tuberculosis, and typhoid

*Deceased.

fever. *One woman in eight* and *one man in eleven*, of those who reach 40 years of age, will die of *cancer*. This high death rate shows that *cancer* is a menace to every one; *your family; you*. The menace of *cancer* lies in the fact that it does not cause pain in the first stages. Its victims, therefore, do not know that they have cancer until the disease is well developed.

* * * * * *

WHY LET CANCER INCREASE?

From 1911 to 1923 there has been an increase of 20 per cent, in deaths from cancer. It is interesting to compare this figure with the change in death rate for tuberculosis. Instead of an increase, there has been a decline of 41 per cent, in the same period. What has been done in tuberculosis may be possible with cancer. The American Society for the Control of Cancer believes that this can be done and it will be done when the people realize that an early diagnosis and prompt treatment of cancer are necessary."

The following quotation is from *The Cancer Problem*, published in 1926 by Dr. E. C. Folkmar, M. Ph., D. S. S., M. D., Editor of Scientific Therapy and Practical Research, Fellow American Medical Association.

"The pity of it all is that while the controversy is going on between the bacteriologists, the physiologists, the clinicians, the bio-chemists and even the bio-physioists on the one hand, and the dictators of orthodox medicine, the surgeons and the pathologists on the other hand, *the people are paying very dearly for this delay, for the incidence of cancer is on the increase and the mortality from cancer is steadily increasing at the rate of 2 per cent per annum.*"

Statistical analysis shows that cancer is on the increase, that such increase is alarming, and Dr. Folkmar makes the following remarks on page 27, of *The Cancer Problem*, regarding the statis-

tical analysis of one of the great life insurance companies of America.

"The Metropolitan Life Insurance Company has issued a little booklet on cancer mortality among insured wage earners and their families, which gives information deemed desirable to present in the interest of the public. It contains much food for thought. The period studied covered 12 years, 1911 to 1922. This company operates in practically every state in the United States and in every province in Canada. It includes among its policy holders all classes of the population (both white and colored), persons engaged in all kinds of occupation, including house-wives. The records of sickness and death shown upon the claim form of the company are much more complete than those of the United States census of vital statistics."

It may be of particular interest to the reader what the Metropolitan Life Insurance Company has to offer on the increase of the incidence of cancer in their booklet.

METROPOLITAN LIFE INSURANCE REPORT

"1. During the period studied, cancer was the fifth cause of death in numerical order. In 1921, it held third place, surpassed only by heart disease and tuberculosis. More money is paid in death claims by the Metropolitan Life Insurance Company on account of cancer than for either heart disease or tuberculosis. One dollar in every eleven is for death claims on account of cancer.

2. During the period studied the death rate from cancer has increased among the industrial population of the United States and Canada. This increase, however, has not been uniform at the several age divisions of life. The more advanced the age, the greater has been the increase.

3. While cancer has not been considered a dis-

ease of childhood and youth, the figures reported show a considerable number of deaths from cancer among policy holders under 25 years of age. In fact, over 2 per cent of the deaths from cancer were of persons under 25. The brain, bones, kidney, and lungs seem to be the organs most susceptible to malignant growths during youth. About one-third of all the deaths from cancer of the brain and one-fourth of the deaths from cancer of the bones and kidneys occurred among those under 25 years of age.

4. A child of ten years of age is more likely to die of cancer than from either tuberculosis or pneumonia. Only two diseases are more likely than cancer to terminate the life of the child who has attained the age of ten, heart disease and cerebral hemorrhage, unless it be a boy, since males are more likely to die of chronic nephritis than of cancer. Of the male children of ten years of age, eight in every hundred will eventually die of cancer, and eleven of every hundred of female children of the same age.

5. Over two-thirds of the mortality from cancer, is from cancer of the stomach and liver, the female reproductive organs and of the perineum, intestines and rectum. The death rate of cancer of the stomach and liver is about equal for the sexes, but the rate for females is higher for cancer of the perineum, intestines and rectum.

6. The most pronounced upward trend in the increase in the death rate from cancer has been from malignant disease of the intestines. Of the mortality from cancer of the intestines, over 60 per cent was from growths in the small intestine or in the large intestine above the rectum, 31 per cent was from rectal growths and 6.5 per cent from growths of the mesentery and peritoneum.

7. Next to the stomach and liver, the uterus is the most important organ (numerically) invaded by cancer. The death toll from cancer of

the uterus, from cancer of the breast and from cancer of the rectum is higher among colored females than among white females.

8. Of all deaths from cancer among white females, 13.5 per cent are from breast cancers. There has been an increase in the death rate from this cause for one age group only that of 55 to 64 years.

9. Cancers of the buccal cavity and of the skin are much more frequent in males than in females. Cancer of the buccal cavity was responsible for 7.9 per cent of all cancer among white males and for 6.9 per cent among colored males, while only 1 per cent of deaths from cancer among females was due to cancer of the buccal cavity. The most frequent growths were those of the tongue and jaw. Cancer of the skin forms 4.1 per cent of all cancers among white males, 2.1 per cent among colored males, 1.8 per cent among white females and .9 per cent among colored females.

10. Cancer of the bladder, of the lung and pleura end of the larynx and esophagus is more frequent among males than females.

11. Cancer of the liver and gall bladder is much more frequent among females than among males.

12. *Cancer is increasing strikingly among men, in a number of organs in sites which are not now segregated for statistical study.*''

You will note in Item One "that for the period covered, cancer was the fifth cause of death; in 1921, it held third place;" in 1925, cancer and heart disease caused fully half of all deaths of adults.

Dr. Alpheus W. Hoyt was a very prominent cancer specialist of New York City. Cancer societies welcomed his lectures and his writings for medical journals were always in demand. The Doctor delivered an address before the Koch Cancer Foundation, Chicago, Ill., on

September 23, 1926, which was printed in the Koch Bulletin of Oct., 1926. The following is taken from this address, in which Dr. Hoyt quotes Drs. George H. Bigelow and Howard Canning Taylor.

> "George H. Bigelow, M. D., Commissioner of public health of Massachusetts, presented a special report, December 15, 1925, on the prevalence of cancer in that state, in which he finds (Page 93) that:—
>
> > "Cancer has apparently been on the increase for the last three-quarters of a century at least and is still on the increase throughout the world. According to statistics, Massachusetts has the highest death rate of any state in the Union, the adjusted rate being 79.9 in 1926, while South Carolina had the lowest rate with 45.8. Cancer has been increasing throughout Massachusetts for at least seventy-five years, starting with a crude rate of 15.3 per 100,000 in 1850 and reaching a crude rate of 26.8 in 1924."
>
> "In conclusion I will quote from the preface to "Cancer, Its Study and Prevention," by Dr. Howard Canning Taylor, M. D.:
>
> > 'No larger problem in public health confronts the medical profession and the laity of the civilized world today than that of cancer. There are two ways by which this problem can be approached, one is by the acquisition of more information regarding the disease, and the other is by a better use of the facts now in our possession.
> >
> > To obtain more knowledge of the subject is the task of both the investigator in the laboratory and the clinician with his patients. To make more practical use of the facts relating to cancer which we now possess is the duty of the clinician and of the patient. Throughout the entire world may be found institutions equipped to search for facts about cancer; and

* * * additions to our store of information are being made almost daily by means of their researches'."

CANCER REAPS ITS HARVEST—500,000 YEARLY

Says Dr. G. Fichera in an article in the "Preusa Medica:

"No climate or race of people is exempt from cancer and a half million die each year of the disease."

The following record covers a period of twenty years, 1906 to 1926, and the cancer situation in twenty-two cities. The writer deems this report of sufficient interest that the entire item is quoted in full, with the exception of Table No. 2—Cancer in 119 American Cities. This table is a compilation of figures which the writer believes would be of no particular interest to the reader. The summing up or totals are well noted in Tables No. 1 and No. 3. This article was released for publication on October 13, 1927, by "The Spectator" of 135 William Street, New York.

BY FREDERICK L. HOFFMAN, LL. D.

"The cancer record for 1926 is a dismal indictment of the failure of modern efforts to check the ravages of this dreadful affliction. As shown by the table following for twenty-three American cities, the rate has increased from 74.5 per 100,000 in 1906 to 92.3 per 100,000 in 1916 and to 114.5 per 100,000 in 1926! This is the highest figure which thus far has been collectively reached for American communities. The record in detail is given for 119 American cities for the two years 1925-1926. This record is of profound interest in that it localizes the cancer incidence, which varies widely in different localities. The rate increased in 67 out of 119 cities, or collectively from a rate of 107.3 per 100,000 in 1925 to 109.8 in 1926. It is amazing to find that most of the cities now have

rates in excess of 100 per 100,000, while twenty years ago this was exceedingly rare in the experience of our American mortality. Eight of the cities show rates in excess of 150 per 100,000. Such rates even ten years ago would have been considered of doubtful intrinsic value.

TABLE I—CANCER IN 23 AMERICAN CITIES

1906—1926

Year	Population	Cancer	Rate Per 100,000 Population
1906	14,178,628	10,569	74.5
1907	14,572,757	11,201	76.9
1908	14,966,886	11,499	76.8
1909	15,361,015	12,451	81.1
1910	15,755,127	13,034	82.7
1911	16,148,512	13,449	83.3
1912	16,531,898	14,205	85.9
1913	16,935,283	15,152	89.5
1914	17,328,669	15,654	90.3
1915	17,722,054	16,040	90.5
1916	18,115,440	16,729	92.3
1917	18,508,825	17,417	94.1
1918	18,902,211	17,926	94.8
1919	19,295,596	18,670	96.8
1920	19,688,582	19,442	98.7
1921	20,071,967	20,295	101.1
1922	20,455,352	21,258	103.9
1923	20,839,737	22,616	108.5
1924	21,228,822	23,830	112.3
1925*	20,095,880	24,051	114.0
1926*	22,234,500	25,452	114.5

* 22 cities.

The question, of course, always arises as to what real value can be attached to crude cancer statistics not corrected for age and sex variations in the population and particularly for non-resident factor, which, unquestionably, in certain localities tend to materially increase the apparent rate of local frequency. Unfortunately, corrections for the resident factor are etxremely difficult to make. The census office alone could undertake a redistribution of deaths by place of original residence and then there would enter the fact of uncertainty as to what is to be considered a resident or a non-resident, which, of course, would

have to be determined on a purely arbitrary basis. In my San Francisco cancer survey, I deal with this matter along new lines of investigation, proving conclusively that for certain cities at least the non-resident factor is not as important as has often been assumed to be the case.

The eight cities with the highest local cancer death rates not corrected for age and sex or the resident factor are:

Albany, N. Y.	163.9	San Diego, Cal.	164.5
Chelsea, Mass.	157.7	San Francisco, Cal.	159.1
Pasadena, Calif.	176.4	Topeka, Kansas	155.8
Portland, Me.	167.5	Spokane, Wash.	153.2

Aside from the foregoing, mention should be made of Sacramento, Calif., for which the rate was 181.2 or the highest on record for the current year. This rate is included in a supplementary table of twenty cities, for which data for 1925 were not available. Out of the 119 American cities which in 1926 had an average rate of 109.8 per 100,000, 29 had rates of 125 or over per 100,000. These excessive rates cannot be explained on the ground of the non-resident factor, or the higher average age of the population as primarily determining factors. The population is aging, of course, all over the country, but the process is slow and would not profoundly affect the death rate by specific causes, except after many years. I firmly believe that for all practical purposes the crude death rate is a fairly satisfactory index of a high or low degree of incidence, irrespective of the many factors which tend to diminish the value of the crude death rate as a true index of local frequency. *In any event, it serves no practical purpose to indulge in long discussions of a statistical nature, while the trend towards a higher death rate is manifest in every direction.* The cancer problem will never be solved by such discussions, which are rather controversial, for its own sake. The fact remains that we have a vast amount of more malignant disease at the present time than thirty years ago in proportion to the population

considered. The increase in cancer has been real and not apparent. *No material progress has been made in cancer diagnosis at death,* which, of course, for the present purpose, is the only determining factor. The progress which has been made in the diagnosis of cancer in its initial stages does not affect the issue at all.

Much can be learned from a thorough study of cancer mortality statistics, subject to a strict critical examination and amplified by investigations into the past and present history of living cancer patients. It is amazing that so little has as yet been made of the vast collective cancer experience of our hospitals and private clinics. Most of the fundamental conclusions regarding cancer are more or less open to objection in that they rest upon too fragmentary a statistical basis. In practically all such investigations the law of large numbers is ignored. But progress in the statistical study of cancer is much more likely to be made from examinations of records pertaining to living cancer cases than from a further exhaustive study of the records of the dead. Such studies give promise of considerable practical value, which may be applied to preventive efforts, particularly in the direction of suggestions towards a more wholesome mode of every-day life. For it goes without saying that the root of the cancer problem *must, in its last analysis, finds its explanation in profound alterations in our modern mode of living as compared or contrasted with the more natural mode of living in former years.* This conclusion is emphasized by a study of cancer in native races, which almost invariably yields evidence to the effect that malignant diseases among primitive people are exceedingly rare in contrast to the extraordinary frequency among the more highly civilized races. Discovery after discovery is announced, now as to causation, now as to treatment, but all leave the subject as confused and complicated as ever. The vast amount of laboratory research on the one hand and of cancer pro-

paganda on the other seems to have had no measurable effect on the cancer death rate. *The enormous sums of money which are expended on cancer research seem to have yielded thus far not a fragment of evidence of real value towards the control and cure of the disease.* The more thoroughly one is familiar with the situation and the more disinterested one is as regards methods to be followed, the more one becomes convinced of the utter futility of most of the methods, at present followed, which rest chiefly upon incessant claims for money and more money, instead upon more and more unselfish devotion to the underlying facts and conditions that thus far have baffled human intelligence throughout the world. Statistical research offers clues not necessarily to a cause or cure, but chiefly to the direction in which more specialized research may employ itself to best advantage. At the present time, a glance backward upon the last ten years certainly justifies *no other conclusion than that we are apparently not on the right track that is likely to yield results of far-reaching value.*

TABLE III—CANCER IN 20 AMERICAN CITIES—1926

Allentown, Pa.	94,600	83	87.7
Charleston, S. C.	74,100	57	76.9
Davenport, Iowa	56,000	78	139.3
Duluth, Minn.	113,000	114	100.9
Evansville, Ind.	95,100	82	86.2
Flint, Mich.	136,000	86	63.2
Gary, Ind.	80,800	21	26.0
Jacksonville, Fla.	137,000	92	67.2
Kansas City, Mo.	375,000	444	118.4
Lakewood, Ohio	59,500	49	82.4
Little Rock, Ark.	75,900	84	110.7
Louisville, Ky.	311,000	331	106.4
Oklahoma City, Okla.	145,000	105	72.4
Peoria, Ill.	82,500	92	111.5
Sacramento, Calif.	73,400	133	181.2
Saginaw, Mich.	73,300	60	81.9
Shreveport, La.	59,500	27	45.4
Sioux City, Iowa	78,000	97	124.4
Wilkes-Barre, Pa.	78,300	84	107.3
Youngstown, Ohio	165,000	109	66.1
	2,363,000	2,228	94.3"

It is the writer's belief that the cancer situation is a barometer from which most other diseases can be gauged. It is generally conceded by our highest authorities that cancer is a positive result of a subnormal condition of the body and usually is found in persons who, for a long period, have not had a proper functioning of the alimentary canal or those having an acidosis or a constipated condition. The authorities quoted above are the highest in America and their records are more complete than those kept by the United States Government.

Aluminum in all its forms, when taken into the body, has great activity and has such an absorbing power that an acidosis condition or constipation usually follows its use. It is the writer's belief that most diseases are the direct result of these afflictions and that we should be more careful and avoid the material in our foods. **Aluminum is recognized as a positive cause of constipation in animals and men, as noted elsewhere in this book.**

(Italics mine—Betts).

GROUP POISONING CASES

IT HAS been stated by some that enamel wares chip and that the chips ingested in foods, cause appendicitis, etc., that such chips cut or injure the alimentary tract. This may be true, however the writer has made considerable inquiry and has never found one whose appendix had to be removed from such a cause—again, no doubt can be entertained but that sharp enamel chips may cause injury if ingested in foods. If aluminum would break off in chips, an effect upon the organs of digestion would be similar to enamel but such is not the case. When ordinary water or foods come in contact with aluminum, the metal, without breaking or chipping, constantly dissolves and becomes part of the food product contained therein. *In this form* it combines with various chemical elements, like salt, soda, etc., used for seasoning purposes or with the foods themselves. A poisonous substance is produced by such combinations. *In this form such substances are taken directly into the blood stream by absorption.* Of the two evils the writer prefers enamel or other wares which are not absorbed by the body.

Many recent poisoning cases worthy of note may be due to various mineral acid poisons produced by aluminum cooking utensils and aluminum baking powders, when used for church, public or private dinners. The following report is of a group poisoning at Kansas City, Kansas, February 17, 1927—reported in The Kansas City Star, February 18, 1927:

> "POISON LIST NOW IS 150—CAUSE OF ILLNESS AFTER PARENT-TEACHER'S ASSOCIATION CHURCH DINNER IS A MYSTERY—THERE IS SCARCELY A NEIGHBORHOOD IN KANSAS CITY, KANSAS, WHERE A WOMAN IS NOT ILL FROM POISONED FOOD.

Two separate chemical analyses of all the food served yesterday at the Parent-Teacher Association dinner at the Washington Avenue Methodist Church in Kansas City, Kas., will be made as quickly as possible. Reports from various sections of the city today indicated that there was scarcely a neighborhood where some woman was not ill from the poison food served at the dinner.

Members of the Harmony Circle of the church that served 544 guests yesterday are at sea today as to the origin of the poison.

Investigation today showed there was no one article of food eaten by all the victims. Among those ill were some who did not eat of the chicken patties; some did not eat ice cream, etc., including every item on the menu.

EVERY CARE IN PREPARATION

Mrs. W. A. Bailey, general chairman of the dinner, said today that all of the food was prepared in porcelain containers and that *all had been cooked in new aluminum ware.* The food, she said, was the best on the market and was bought from the best merchants. Mrs. Bailey said today the members of the circle were anxious to have a complete analysis made.

The Harmony Circle has a long record for its dinners. It has served the largest banquets in Kansas City, Kas., and has always been recognized as one of the most careful organizations in the city serving banquets. It never had had even the slightest misfortune in the preparation of its food, Mrs. Bailey said. The Rev. Frank Neff, pastor of the church, was grief stricken today over the misfortune.

Reports of more than fifty additional persons ill from the effects of the poison were added to the one hundred reported in the morning edition of the Star. The list includes six or seven members of the high school orchestra that played for the dinner.

ALL OUT OF DANGER

None of the victims is in danger today, it is reported, and virtually all are improved.

The chemical tests will be made by Frank Strickland, city chemist of Kansas City, Kas., and by the Kansas City Testing Laboratory, Kansas City, Mo.

The three women who appeared dangerously ill last night were improved today. They were Mrs. James P. Fox, wife of Judge Fox, of the Kansas City, Kas., police court, Mrs. W. P. Wilson, 236 North Eighteenth Street, and Mrs. H. A. Hussman, Brenner Heights District. Two others discovered seriously ill today were Mrs. T. P. Railback, 1214 North Eighth Street and Mrs. George Teasdale, 808 Ann Avenue. Mrs. John McNarrey, 830 Ann Avenue, president of the Federation of Parent-Teacher Associations, who was stricken last night, still was quite ill today. Her physicians *diagnosed her case as "mineral acid food poisoning."*

There were 554 guests at the dinner. Some went home ill while others were not stricken until last night.

THE DOCTOR'S KEPT BUSY

Numerous physicians in Kansas City, Kas., last night were kept busy. One physician was called on twenty cases resulting from the dinner. In most of the cases the illness was of short duration."

(List of victims, in the Kansas City Star, Feb. 18th, omitted).

A prominent domestic science teacher who lives in Kansas City was familiar with the writer's crusade. She noticed in the above report that all the food had been cooked in aluminum ware and that physicians diagnosed the disease as due to mineral acid food poisoning, and promptly notified the writer of the case. Be-

ing interested in determining the facts positively, as reported in the Star, the writer wrote to the health director, enclosing a copy of "*An Opinion Upon Aluminum*", desiring investigation of the aluminum chemistry in connection with the poisoning.

This action upon the writer's part was apparently much frowned upon as later developments proved. The citizens of both Kansas Cities wanted a *complete* examination made from all sources and they wanted the truth. Following is the report of Dr. Cross, as published in The Kansas City Times-Star, February 23, 1927.

> "NO POISON IN THE FOOD. TESTING LABORATORY COMPLETES ANALYSIS OF SAMPLES FROM P. T. A. DINNER.
>
> A test of the samples of food furnished the Kansas City Testing Laboratory taken from the remains of the dinner served February 17 at the Washington Avenue Methodist Episcopal Church showed no traces of any kind of poison. Dr. Roy Cross, manager of the laboratory, said a complete analysis had been made of all the samples. A previous test by the city chemist of Kansas City, Kas., showed no chemical poisoning."

Can the reader imagine the *popular indignation* which was raised to its highest pitch when such a report from their public officials was published? Was the poisoning of more than 150 of their citizens only a *myth?* Did 554 persons of the Parent-Teacher's Club secretly form a conspiracy to injure the good name of the Harmony circle, who served the dinner and who never had had the slightest suspicion cast upon their dinners before or until this *new set of aluminum kitchen utensils* was installed at the church? Then did only a few more than 150 of the number served at the meal have the will power to go through with the conspiracy? No!! The writer does not believe that any such conspiracy existed. Must the curtain be immediately drawn on this outrage as has been done on so many poisoning cases, by many of our public officials? *No! This one shall not pass.* The

people knew that the aluminum dishes in which the food was left stored over night was the only metal in connection with the food, which could have caused the *mineral acid food poisoning,* diagnosed as such, *by their own physicians.* This led many to believe that in order to safeguard their health they had better purchase wares other than aluminum, for their homes. An "epidemic" of purchasing such cooking wares began and this had reached such proportions that nothing of its magnitude had ever been experienced before. It seemed quite unusual to the writer that no reply should be forthcoming from his letter to the health official at Kansas City or that the matter should be ignored, but the climax to official action came on March 11th at which time the "epidemic" had reached unheard-of proportions. The health director *came to the defense of* aluminum kitchen ware, according to a reported interview in the "Kansan" March 11th, 1927—21 days after 150 of his constituents had been poisoned. He is reported as saying —*"At no time has the health department suspicioned that the aluminum utensils caused the poisoning."* And this in spite of the fact that the poisoning was diagnosed by the physicians as *"mineral acid food poisoning".* Following is Dr. Henry's reported interview, March 11, 1927.

> "POTS AND PANS EXONERATED IN FOOD POISONING—DR. S. D. HENRY RIDICULES IDEA THAT BANQUET UTENSILS WERE RESPONSIBLE. NEVER LAID TO CHEMICALS—"NO ONE EVER BLAMED DISHES FOR RECENT SCARE," PHYSICIAN DECLARES.
>
> Dr. S. D. Henry, city health physician today ridiculed the statement that kitchen ware could be responsible for an outbreak of food poisoning such as at the founders' day banquet. He declared the outbreak was entirely due to bacteriological agencies and that the kitchen utensils could not be held responsible in any way.
>
> "At no time, during the recent food poisoning

scare, has the health department considered that the food poisoning was due to chemical poisons and at no time has anyone connected with the department made any statements which would place the blame for the epidemic upon kitchen utensils,''

Doctor Henry proceeded.

CERTAIN OF BACTERIA

''*Before any analysis* of the food served at the banquet of the Parent-Teacher Association which had such an unusual aftermath, was made,'' Doctor Henry continued, ''*We were all sure* that the poisoning was due to bacterial contamination. The fact that a definite time elapsed before the consumer of the food felt any outward symptoms, was proof positive that the poisoning was due to bacterial activity in the food.''

''How the bacteria got into the food is far from being the mystery which some individuals would have it seem. Miss Elizabeth Brown, city technician, has made a complete examination of all the food which was served at that banquet and we are absolutely certain that the poisoning was due to the bacillus proteus vulgaricus.

PRESENT IN AIR

''This particular species of bacteria very often is present in the air and it is easy to see how the food could have been contaminated. Once a few bacteria got into the food, they would reproduce with remarkable rapidity and all the food would have been a virtual 'culture' of the microorganisms. We have found, in medical literature, records of several similar attacks of food poisoning, where the contamination was plainly by means *of the air.* But in this case, the kitchen utensils could not be blamed.''

Doctor Henry's statements were made after he had been told that a report was being circulated in Kansas City, Kansas, to the effect that the

kitchen utensils were responsible for the outbreak of food poisoning which followed the P. T. A. founders' day dinner February 17 at the Washington Avenue Methodist Episcopal church."

When the writer received the paper containing the above item, he issued a challenge to Dr. Henry. It seemed impossible that any public health official would not at once suspicion every possible cause to determine the facts in the case. Instead of doing that very thing, he is reported as ridiculing the suggestion that cooking utensils be investigated. Then when all tests failed to show poisons of any kind (*except aluminum*) they found a harmless germ which is supposed to be floating around "in the air". It seems to the writer that some ridiculing should be done by others than *Dr. Henry—under such circumstances.* The writer could not find words in the English language to properly express his feelings in the matter but wrote the following challenge and sent it by registered mail to Dr. Henry, which was properly receipted for.

"March 16, 1927.

Dr. S. D. Henry,
Commissioner of Health,
Kansas City, Kansas.

My Dear Sir:

In the Kansas City Kansan, under the date of March 11th, I note that you ridicule the idea that the banquet utensils were responsible for the recent poisoning at the Parent-Teachers banquet, that "no one ever blamed the dishes for the recent scare," etc.

I openly suspect the new aluminum ware that the food was allowed to stand in before being served, was the cause of this wholesale poisoning of your people.

I wish you to know that I am not in the business of selling or manufacturing kitchenware of any kind, neither have I ever received One Dollar or more on stock of any kitchen ware organization, neither do I own any such stock.

To prove to the American public that you are wrong in your statement, I will post with the Kansas City Star—$500.00—to defray the expenses of another banquet prepared in the same manner, with the same kind of foods, and prepared by the same people.

I will guarantee that at least one out of four taking the food will be poisoned. My stipulation is that *absolutely new aluminum ware* and *aluminum baking powders* be used as was used at the banuqet on February 17th, 1927, and that the foods stand in the aluminum ware the same number of hours as before, and that no one eat or take medicine within eight hours following the dinner.

I will not pay for the dinner if the required number become ill within eight hours.

Now if you are sure the utensils had nothing to do with this case of poisoning, match this $500.00 or secure some one with the money, who is willing to pay for the dinner if the required number become ill.

I have sent a copy of this challenge to the Kansas City Star and feel that as an official of your city, your duty is clear regardless of whose pocketbook is affected.

YOURS FOR TRUTH AND HEALTH,
(Signed) Chas. T. Betts."

A copy of the above challenge was sent to the Kansas City Star in an attempt to have them publish it, if Dr. Henry failed to act or accept of the terms, while *some of the food was available for examination.* The following letter was sent by registered mail to the "Star" and was properly receipted for.

"March 16, 1927.

Kansas City Star,
Kansas City, Mo.

Gentlemen:

Please find enclosed a copy of a letter to the Health Commissioner of Kansas City, Kansas.

I have given this challenge to locate, if possible,

the poison which caused the trouble at the Parent-Teachers banquet.

It seems the officials are unable to locate it or to determine the cause of the poisoning. They have never suspected the new aluminum ware. If the aluminum ware was the cause of the trouble, it is no more than right that the public should have the facts.

If Dr. Henry does not have the money to match my $500.00, will you kindly publish my letter to him? Probably some one would be public spirited, sufficient to know the facts in the poisoning case of February 17, 1927.

Sincerely,
(Signed) C. T. Betts."

The writer attempted to secure more assistance from other sources than those above named in order to uncover the poisoning case, so You! I!! Our people!!! *May not be the next to be poisoned.* The Kansas City "Kansan" has this caption which is printed on the face of every paper:

> "The Only Newspaper Circulated in This City Solely and Unconditionally Committed to the Community's interests."

After reading it over and over the writer thought there might be a *remote possibility* of its being true, so he implored their help *for the benefit of their citizens,* as stated in the slogan.

The following letter was sent to them on March 5, 1927:

"Kansas City Kansan,
Kansas City, Kansas.

My Dear Sirs:

I have received a number of copies of your valued paper and everytime I look at one, that statement in the upper right corner of page one strikes me with particular force. After having considerable experience with newspapers, period-

icals and various magazines, it is difficult for me to believe your statement is true or that it could be true of any newspaper that accepts advertising.

A poisoning of considerable magnitude occurred to the people of your city on February 17th at the Parent-Teachers Banquet. Of 544 people who took dinner, your papers report that 150 were stricken with poison. I note that the poison was diagnosed as *"mineral acid food poisoning"*; another notation is that the food was all cooked in *"new aluminum ware"*; also, the meat had stood enmass in the ware all of *Wednesday night*.

I note that the papers are carrying notices up to date of February 28, eleven days after the poisoning occurred that the City Technician claims the "misfortune is due to bacteria" and another "Star" Volume 47, Number 159, that "no poison in the food"—"That there was no traces of poison in the food", etc.

I am in possession of reports of poisoning cases where food has stood in aluminum ware some hours before using and believe this poisoning was due to such cause.

I will be interested in knowing if you as a paper would be willing to make a test and publish the facts of such test for the community's interests.

The test that I would suggest will not cost you any cash unless an average of one out of every four eating the food cooked and which stands in new aluminum ware, becomes ill within eight hours from the time of eating the food, as occurred on February 17th last.

I will appreciate your answer. I am sending, under separate cover, one of my little books on the subject of aluminum and if interested further in such poisoning, will be pleased to communicate for the good of the "community's interests."

Thanking you, I remain,

Sincerely,
(Signed) C. T. Betts."

It appears to the writer, that as an American citizen in a democracy, anyone should have the right to ask questions or to make suggestions to public officials—that such men are public servants and should, at least, make some effort to determine the cause or causes of such an extensive poisoning case, as referred to above. However, it is evident such officers believe that health is strictly a matter under local control. This apparently is proven by the fact that no answer was received from any of the above communications or to the following letter.

March 23, 1927.

State Board of Health,
Topeka, Kansas.

Dear Sirs:

A recent poisoning case has been noted at Kansas City. I have been interested in aluminum metallic poisoning cases in various localities and found this one was of some magnitude. I note that your worthy Dr. Henry of Kansas City is quoted as saying that he was sure the poisoning was bacterial before any investigation was made. I note that nearly thirty days have elapsed and only one germ has been found, but it is evident the kind found is quite non-poisonous and floats around *in the air.* He thinks probably *one* of these floating around became located in a pot of food that was served and generated more of its kind.

I note that no one article of food was eaten by all the persons that became poisoned. According to Dr. Henry's knowledge, quoted in Kansas City Kansan of March 11, 1927, the multiplying germs must have become so thick in the pot of food that some of them jumped out in the air again and landed right in another pot of food causing it to be contaminated also. This process must have continued until *all the pots* containing food for the banquet received sufficient germs to cause poisoning of violent nature, and this happened within a few hours time.

It is evident the Doctor never suspected *mineral*

acid poisoning (aluminum chloride), even though the good physicians diagnosed it as such immediately (Kansas City "Times Star", February 18, 1927).

No tests have yet been made to my knowledge to determine *mineral acid poisoning,* even though his attention was called to the matter at once and also, having the information that physicians diagnosed it as a case of such poisoning. *This in the year 1927, seems impossible of comprehension.*

I believe *your people* are entitled *to the facts* and should not have such biased investigators as reported in Kansas City Kansan of March 11, 1927. I am sending you a little book on the subject, like the one I sent to Dr. Henry, but judge he misplaced it. If Dr. Henry will not eaxmine for mineral acid poisoning, I hope *you will have a little time to make such an eaxmination.*

Sincerely yours,
(Signed) C. T. Betts.

The above letter was written eighteen days after the request for a test meal was made to the "Kansan". It became evident that the writer could not secure any information or investigation of the poisoning, by local health officials regarding the aluminum chemistry. The State Board of Health seemed to take such an extremely small interest in the case, yet it was thought probable that they might be stirred to some action, but to no avail. All the writer could learn was that Dr. Henry was requested to write a paper and to read it before the State Medical Society, which probably was done—this closed all public official action in the case and it still remains a mystery, like all other poisoning cases of similar nature.

The following is one of many cases reported in the public press almost daily, telling of the suffering, misery and death from food poisoning. It has been the writer's experience that no information can be secured from officials of such organizations or from public health departments, except in rare cases. After a number of

inquiries have been made to the same persons, an answer may be forthcoming, with the information that the foods that caused the poisoning had been left standing or had been cooked in aluminum ware. Aluminum is the standard equipment in this kitchen at St. Louis.

Taken from the St. Louis Post-Dispatch, Wednesday evening, March 9, 1927, St. Louis, Mo.

> "ONE DEAD, 17 ILL AFTER MEAL AT HOME FOR BLIND—MRS. ROSALIE VOGELSANG, 68 YEAR-OLD MATRON, SUCCUMBS APPARENTLY TO PTOMAINE POISONING—OTHER VICTIMS SAID TO BE RECOVERING—CHECK-UP SHOWS ALL HAD PARTAKEN OF CHICKEN SOUP—AUTOPSY IS ORDERED BY CORONER.
>
> Mrs. Rosalie Vogelsang, 68 years old, matron of the Blind Girls' Home, 5235 Page boulevard, died at 10:40 o'clock last evening, apparently from ptomaine poisoning, and 17 inmates of the home were made ill by something they ate at the evening meal Monday.
>
> After a partial analysis today, Dr. R. B. H. Gradwohl of Coroner Vitt's autopsy staff reported that Mrs. Vogelsang's death was probably due to food poisoning, and that she also was suffering from heart trouble. His final report will be submitted at an inquest tomorrow. The other sufferers are in the care of a physician. Most of them are aged blind women, and it was said at the home that all would recover.
>
> The menu of the Monday evening meal consisted of chicken soup, made from chicken left over from Sunday; canned corn, roast pork and baked potatoes. Mrs. Vogelsang and the others became ill Monday night, suffering from cramps and nausea. Dr. Horace E. Johnson, 2435 North Grand Boulevard, who attended Mrs. Vogelsang, said her illness was due to something she had eaten. Most of the other women were kept to their beds yesterday, but are feeling better today.
>
> A check-up of the 17 made ill showed that all

had eaten the chicken soup, but several had not eaten the canned corn. All showed the same symptoms; no case being as acute, however, as that of Mrs. Vogelsang. She suffered intense pain and sank into a coma from exhaustion, failing to rally.

Those who became ill were Mrs. Dena Belcour, Mrs. Margaret Campbell, Mrs. Josephine Bauling, Mrs. Anna Thomas and Mrs. Isabelle Quirk, Miss Julian Graves, Miss Margaret Sewell, Miss Ida Humes, Miss Ivy Robb, Miss Elizabeth Shoy, Miss Mary Loury, Miss Clara Shaner, Miss Clara McClung and Miss Anna Casey. Mrs. J. M. Lovier, sister of Mrs. Vogelsang, and Mrs. Lucy Clanton, her maid, also were ill.

The ages of the inmates of the Blind Girls' Home range from 30 to 80 years. Most of the patients were past 50. There are 39 inmates, and all partook of the meal with Mrs. Vogelsang in a common dining hall. She had been matron for eight years and a member of the Board of Managers for 20 years."

Following are a few prominent group poisoning cases, reported during the last few months. Any number of these are occurring almost daily in various parts of the United States. However, the papers are reporting the most serious ones regularly, of which the following are worthy of note, which have come to the author's attention.

JULY 15, 1926

On this date at a meal served between Gold and Genesee, Pa., Mr. Charles Baker died and a number of others were poisoned. Mrs. Charles Baker also died from the poison, within a few hours after her husband. No further deaths reported in this case. Case reported in the Olean Evening Times, Olean, N. Y.

APRIL 8, 1927

A serious poisoning case occurred at the Blind

Girl's Home, St. Louis, Mo. Seventeen inmates were poisoned in a mysterious way from the food, which was allowed to stand in kitchen ware about twenty-four hours. Aluminum is used extensively in their kitchen. Mrs. Vogelsang, the matron, died from the effects of the poison contained in the food. This case was reported in the St. Louis Post-Dispatch, April 9, 1927. Coroner Vitz also made a report on this case.*

DECEMBER 12, 1927

The Toledo Blade, Toledo, Ohio, gives an extensive report of the death of one person and the critical condition of three others, who were reported as drinking coffee which became poisoned from some source. No official report of the coroner's findings received in this case, reported in the Toledo Blade, Toledo, Ohio.

JANUARY 8, 1928

A very serious food poisoning case occurred at the Army Air Corps Cafeteria, Dayton, Ohio, on January 8, 1928. It was reported that more than 200 employees were poisoned by eating pie. The flour used was suspected of containing a mineral (aluminum) which may have caused the poisoning and a chemical analysis of the dough was made.**

JUNE 3, 1927

At the annual dinner of the Monclova Alumni Association, Monclova, Lucas County, Ohio, a large number of persons were poisoned, no deaths occurring. No known cause for the poisoning was reported, although aluminum ware was used almost exclusively. Chicken was prepared in the homes of the participants and later mixed together in the preparation for serving. In this manner the entire quantity became poisoned. Case reported in the "Maumee Advance Era", June 3, 1927, Maumee, Ohio.

NOVEMBER 28, 1927

In Baltimore, Md., on November 28, 1927, at the

*Refer to Page 127.
**Refer to Page 6.

wedding of Miss Eva Sandel to Mr. Louis Kabuchnick, more than 100 guests required medical attention by reason of food poisoning, of a sudden and mysterious nature. Case reported in various papers throughout the country.

FEBRUARY 17, 1927

At the Parent Teachers' banquet in Kansas City, Kansas, 554 people were served, after which more than 150 became poisoned. Many of those poisoned in this case were city officials and prominent persons in the social affairs of the city. This caused considerable discussion in papers throughout the land.

DECEMBER 3, 1927

"200 CHURCH DINERS POISONED

FEBRUARY 17, 1927

PUNXSUTAWNEY, PA.

DECEMBER 3

> Two hundred people, who attended a chicken supper at the First Baptist Church, today are recovering from ptomaine poisoning. A dozen or more are seriously ill, but so far there have been no deaths.
>
> Women of the church prepared the supper at their homes and served it in the church auditorium, and every person who partook of the supper became ill.
>
> Physicians stated that the entire supply of gravy had been poisoned, as the result of one of the women leaving the gravy in an *aluminum container too long before taking it to the church.* All the gravy was collected into one container to heat and in that way the entire supply was contaminated.
>
> The Rev. E. L. Safford is pastor of the congregation."

This case was reported in the Sun-Telegraph, Pittsburg, Pa., on December 3, 1927.

JUNE, 1927

At a banquet of students of the Waite High School of Toledo, Ohio, a large number of students were poisoned from the food which they consumed. A few of these were taken to the hospital. One hovered between life and death for several days, but all recovered.

Reported in all Toledo papers, Toledo, Ohio.

DECEMBER 24, 1927

"$2,500 DAMAGES SOUGHT AGAINST THE * * * COMPANY

> Eight suits against the * * * Baking Co.,* each asking $2,500 damages for illness suffered after eating custard cream puffs, were on file Saturday with Charles Tonsing, file clerk of municipal court.
>
> Those who brought the suits are: Paul Mosutan, 3543 W. 99th St., Katharine Garity, 1420 W. 48th St.; Carl Ernst, 2138 W. 95th St.; Mary Corso, 2219 W. 85th St.; Howard Maring, 3280 W. 84th St., and Pauline Stoff and Julia and Edward Steiner, 7506 Denison Ave.
>
> Filing of the suits follows the illness a few weeks ago of fifty-eight persons, said to have eatent custard cream puffs made by the company."

Case was reported in the Cleveland News, Cleveland, Ohio.

APRIL 1928

The Beckman family in Bowling Green, Ohio, partook of food and were stricken with poison, in the month of April, 1928. There were eight in the family and to date, July 1st, 1928, three have died of the poison and two others are quite ill. It was thought that the meat which they ate, was partially cooked and that all the

*Name of Baking Co. omitted by the author.

germs in the food were not thoroughly killed, which apparently was the cause of the poisoning. Case reported in the Toledo Times, June 30, 1928, Toledo, Ohio.

MAY 8, 1928

A large number of delegates were poisoned at Little Rock, Ark., at the United Confederate Veteran's Reunion, which was held in that city, May 8, 1928. Persons were poisoned so severely that they were removed to hospitals for medical treatment. Mr. and Mrs. Tom Dalton of Dallas, Texas, the latter an official nurse of the Dallas Delegation, suffered from the food poisoning but were not removed to the hospital. Case reported in the Springfield Daily News, May 9, 1928.

JUNE 4, 1928

On June 4th, a father of a family purchased food that was prepared the day before and allowed to stand in aluminum ware and after partaking of same, they were all made ill. This created such interest that the District Attorney decided to step in, apparently ahead of the Health Department. It is a serious matter in this country when our health authorities are sufficiently blinded, from some cause or other, that the facts pertaining to poisoning cases must be determined by District Attorneys.

"*New Orleans States*, New Orleans, La., Monday Evening, June 4, 1928.

FOUR ILL FROM PUDDING—ONE DEAD, FOUR ILL FROM PUDDING IS CHARGE. ENTIRE FAMILY AFFECTED; DISTRICT ATTORNEY TO PROBE CASE.

Authorities Monday afternoon were investigating to ascertain the exact nature of poison contained in a pudding, the eating of which resulted in the death at 11:30 Monday morning of Rene Alberti, 12 years old, of 5139 Arts Street, and the serious illness of his mother, his sister, the lat-

ter's fiancee, and a fifth young man. *The pudding was purchased in an aluminum pan* by R. J. Alberti, father of the dead boy, at a restaurant on last Thursday, and he brought it home for dinner. Mr. Alberti said he ate only a small piece of the pudding, and he was made only slightly ill. However, the son, his wife, his daughter, Claire, his daughter's fiancee, Morris Callaut, of Urquhart Street, near Louisa, and Alfred Scott, 19 years old, a friend, living at 2622 St. James Street, became violently ill on Saturday, and all were removed to Charity Hospital.

Monday morning Rene Alberti's condtiion grew worse, and, despite desperate efforts of hospital doctors to save him, died. The others were reported in a serious condition Monday.

Following the death of young Alberti, hospital physicians diagnosed the case as "enteric fever." This condition exists in the case of the other four, also. They explained that this condition is induced by the enteric germ group, which, if it settles in food, may result seriously."

JUNE 8, 1928

At the Washington Business High School, Washington, D. C., 161 persons were poisoned, including visitors.

"STUDENTS STRICKEN AT VICTORY DINNER TWELVE SERIOUSLY ILL BUT THOUGHT ALL WILL RECOVER.

Washington, June 8.—One hundred and forty persons, most of them students, are ill as the result of a banquet at Business High School here Tuesday night. Twelve of those stricken are said to be in a serious condition, though it is believed that all will recover. The banquet was held to celebrate the winning of a competitive drill by a school cadet company. Almost immediately afterwards pupils, teachers and school employees were

stricken, among them being Stephen E. Kramer, first assistant superintendent of schools.'' Case reported in the Scranton Republican, June 9, 1928, Scranton, Pa.

So the reader can comprehend how serious the question of food poisoning has become, the writer will cite several cases in the following eight reports, which have come to his attention through the public press, within the last twenty-four days, June 30th to July 23rd, in which time 765 persons were poisoned by foods which they consumed. Two deaths occurred.

As this book is now going to press, the reports of the various findings cannot be included herein, but as practically all tests to determine the cause are for bacterial poisoning, it is the author's opinion that naught else but mystery will prevail. May the time soon come when investigators will look for ''mineral acid poisoning'' from the aluminum used in connection with the preparation of the food. Then the cause can easily be found in most cases.

JUNE 30, 1928

THE SUN-TELEGRAPH, PITTSBURGH, PA.
8 POISONED AT WEDDING HERE

Eight persons are suffering from ptomaine poisoning from eating iced cakes purchased for a wedding celebration at the home of Peter Capozzoli, 8015 Ferndale Street, police were notified today.

The celebration followed the marriage, last Thursday morning, of Mary Capozzoli and Filomen Errico in the bride's home at the Ferndale Street address.

Peter Capozzoli, 53, father of the bride, employed by the City Bureau of Highways and Sewers, ate several cakes for lunch yesterday and was found in agony in a toolshed near where he was working in the Point Breeze district. He was removed to his home.

Others stricken were Mrs. Peter Capozzoli, 53; a daughter, Rose, 18; a daughter-in-law, Mrs. Anna Capozzoli, 3427 Ward Street; her daughter, Anetta, 6; Mary Somma, 30, of 8002 Frankston Ave., Mrs. Rosa Guileano, 75, of 7922 Frankstown Avenue, and her grandson, Albert Guileano, 6; same address. All will recover, police were informed.

JULY 16, 1928

DETROIT TIMES, DETROIT, MICHIGAN
18 POISONED AT FAMILY PICNIC
PTOMAINE DEATHS FEARED

Ionia, Mich.—Of 75 persons who attended the picnic, 18 are confined to their beds, several in a serious condition, according to Ionia doctors.

The investigation being conducted in an effort to trace the poison is hampered because some of the victims are too ill to talk.

Victim after victim collapsed at the picnic and was rushed home. The four Ionia doctors were unable to care for all the patients immediately, so fast did the poison take effect.

JULY 17, 1928

THE BOSTON POST, BOSTON, MASS.

SCORES POISONED BY EATING IMPURE FOOD. OVER 60 EMPLOYEES OF FORD MOTOR COMPANY IN SOMERVILLE TAKEN VIOLENTLY ILL AFTER PARTAKING OF BOX LUNCHES FURNISHED BY BIG RESTAURANT CONCERN. MANY AT REVERE SUGAR REFINERY STRICKEN FROM SAME CAUSE.

CUSTOMERS AND EMPLOYEES IN COMPANY'S LUNCH ROOMS ALSO AFFECTED.

HOSPITALS FILLED WITH VICTIMS—CORNED BEEF OR CHOCOLATE CREAM IS BLAMED.

NO FATALITY REPORTED—GREAT PAIN SUFFERED—DOCTORS KEPT ON RUSH

CHEMISTS SEEK TO FIND SOURCE OF POISONING.

The company operating the restaurant system which supplied the food which made so many people ill, told the "Post" last night that a thorough investigation is now under way. Chemists are analyzing food to trace the source of the poisoning, while other experts are conducting separate probes in an effort to fix the responsibility. The company promises that when the investigations are completed a full statement of the facts will be made public.

Stricken by poisoning while most of them were at work yesterday afternoon, 72 persons were last night confined in four hospitals of Greater Boston, at least 75 more had been treated and released, and hundreds of others—all of whom were said by doctors to have eaten food prepared by a big restaurant company, were under doctor's care at their own homes.

The malady, whose exact toll in numbers could only be estimated late last night, struck suddenly and swiftly in a score of places during yesterday afternoon, filling private and city hospitals, causing intense suffering, but claiming no lives as far as was known to medical authorities at midnight.

JULY 20, 1928

THE TOLEDO NEWS-BEE, TOLEDO, OHIO
WARMED-UP CHICKEN SALAD HITS 325, STARTS ROW

KANSAS CITY.—Chicken salad now enters as a piece de resistance of a most embittered argument between chefs and city authorities here.

Last Tuesday chicken salad was served to employes at General Hospital. It wasn't long before the workers in the establishment had become patients—325 of them. Acute indigestion resulted from the meal and, according to hospital officials, from the salad.

"Chicken salad," said Dr. Ernest W. Cavaness,

director of health, "is not healthful in warm weather. It is an unwise combination of mixed meats, seasoned with vinegar and pickles."

The doctor started something.

Chefs came to the rescue of the salad. They maintained the doctor might know his health, but he didn't know his salads.

Their protest was voiced by Wesley Suttles, chef at the Kansas City Club, who declared:

"I've been serving chicken salad for 14 summers and I never yet have seen anyone made ill by it. If you have good, clean, fresh meat, there is nothing wrong with making chicken salad of it. If the meat is not fresh, most every person who eats it will become ill."

Whoever may win the argument, there are 325 persons at General Hospital who are not eating chicken salad.

JULY 21, 1928

GRAND RAPIDS PRESS, GRAND RAPIDS, MICH. FIVE MADE ILL AFTER EATING AT HUBBARDSTON

Hubbardston.—Mr. and Mrs. Edward Proctor and son and Lola Proctor, all of Lansing, came here to attend to some work in the family berry patch. Before starting Mrs. Proctor cooked a duck and packed it, still warm, in a *closed aluminum container*. All ate of the duck and afterward all became severely ill, as also did Mary Feehan of the village. They suspect their illness was due to the duck.

Out in Texas, the family poisoned by beans cooked in an aluminum dish and which were eaten at a later meal, after standing in the *same aluminum container*, did not fare so well. Two of their number died.*

*Page 138.

JULY 21, 1928

THE DALLAS MESSENGER, DALLAS, TEXAS

TWO OF FAMILY DEAD, FIVE MAY DIE AFTER POISON BEAN MEAL.

SUPPERLESS BABY ONLY ONE NOT INJURED BY LEFTOVER VEGETABLE.

Crowell, Foard Co., Texas.—July 20.—J. B. Lassiter, a Foard County farmer, and his 5 year old daughter, Mary, are dead and five other members of the family are in a critical condition as the result of eating poisoned beans Wednesday night that were carried over from a previous meal in *an aluminum vessel.* Lassiter died early Friday and his daughter Thursday night. Elroy, 16 year old boy, is not expected to live, and Mrs. Lassiter and one other son and two daughters are still in a serious condition, but have a chance for recovery, according to Dr. Clark. A 2 year old baby that went to bed without supper is the only member of the family that was not poisoned.

JULY 21, 1928

THE WASHINGTON POST, WASHINGTON, D. C.

FOOD POISONS 200 AT MISSION OUTING

WOMEN AND CHILDREN STRICKEN ON RIVER TRIP. GUESTS OF UNION MISSION AT MARSHALL HALL ARE VICTIMS OF STRANGE PROSTRATION. SCORES SERIOUSLY AFFECTED. BROUGHT TO CAPITAL BY BOAT —RELIEF PARTY SENT.

An attempt to give joy to the under-privileged children of the city and to obtain for them some relief from the terrific heat turned into tragedy last night, when more than 200 women and children who went to Marshall Hall on the outing of the Central Union Mission were stricken with a strange illness.

Scores of the stricken were rushed back to the

Capital on the steamer Charles MacAlester at 6:30 o'clock last night, while 200 were left to suffer at the resort until the steamer could be sent back later in the night to bring them back.

Several doctors and a score of nurses were aboard the ship when it steamed away from the Seventh Street wharf at 7:30 on its errand of mercy.

BOAT CARRIES RELIEF PARTY

The boat went down the river under full steam to carry the relief party, in charge of Dr. I. Rutkoski, of Emergency Hospital, to the resort.

When the steamer returned to the Capital with its first cargo of stricken parents and children it was met at the wharf by the Emergency Hospital Ambulance. Efforts to administer to the patients at the wharf and on the boat were futile, and the ambulance, together with others, made a series of trips to transfer them to the hospital.

JULY 23, 1928

THE TOLEDO NEWS-BEE, TOLEDO, OHIO

TEACHER, THREE IN FAMILY ARE POISON VICTIMS

Prof. H. J. Eberth, 60, Instructor at Scott High School and former superintendent of Toledo schools, and three members of his family were made severely ill Sunday night when they ate food that poisoned them.

Besides Eberth, his wife, Mrs. H. J. Eberth, 55; their son, John Eberth, 20, and a daughter, Miss Anne Eberth, 19, were made ill.

EDITORIAL 7-24-28

DALLAS TIMES- HERALD

FOOD POISONING

AN UNUSUALLY LARGE number of food poisoning cases are being reported. The employes

of several industrial concerns were all made ill the other day by box lunches, two hundred youngsters were poisoned on a Potomac river picnic, and all but one member of a Texas farmer's family were poisoned by eating beans left over from a previous meal.

The first two of these incidents involved food from establishments under jurisdiction of city health departments but the Texas case involved home-cooking. But the cases were all the result of carelessness or the lack of knowledge of danger. The beans had been left standing in a metal* vessel, and it would not be surprising to find that the other food was poisoned in the same way.

Food control by health departments is largely confined to enforcement of ordinances concerning cleanliness and to health of the food handlers. Seldom does one hear of any instruction being given food handlers as to the type of vessels that should be used in preparing and keeping food. Millions of directions for cooking and recipes for various dishes are being published, with much special reference to the values of certain foods, but cooks and housekeepers are not often informed as to methods of preventing food poisoning.

It is high time that an exhaustive study was made on food poisoning and that the results of the study were given extensive publicity. As long as such wholesale poisonings as those reported this summer are taking place much of the value of food control work is lost. *While contamination sometimes results from filth it is evidence that many incidents are caused by chemical action.*

---

*Aluminum.

JULY 28, 1928

THE PITTSBURGH PRESS, PITTSBURGH, PA.

FOOD POISONINGS LAID TO LAXITY

LAWS NOT ENFORCED BY GOVERNMENT, WILEY CHARGES

BY DEXTER M. KEEZER

Scripps-Howard Staff Writer.

Washington, July 28.—Laxity in enforcing the pure food laws, particularly the Federal law, which he said has been completely wrecked, was blamed today by Dr. Harvey Wiley, famous pure food authority, for the large number of outbreaks of food poisoning reported during recent weeks.

"It is extremely difficult to trace the exact cause of any case of food poisoning," Wiley said, "but there is no doubt that the plague of food poisoning from which various parts of the country have suffered this summer is due in large measure to failure to enforce the pure food laws."

Wiley said that the Federal pure food law, the authorship of which is generally credited to him, has become a dead letter, having been "manacled" by executive orders which have destroyed any chance of enforcing it.

"*It is now possible to load bread with alum** and saturate dried foods with sulphur dioxide, for example, without any fear of prosecution," Wiley said, "because the Federal enforcement officers are forbidden by executive orders to take steps to stop such practices."

Abolition of the Federal bureau of chemistry, which was originally designed to enforce the Federal pure food law, has proved a severe blow against the provisions against adulterated foods, Wiley said.

"I have appealed to the present administration to sweep away the executive orders which have re-

*Aluminum.

duced the pure food law to impotency," Wiley said, "but have failed. I would go into court and seek to secure enforcement of the law by mandamus proceedings, but I cannot show the requisite financial interest in the matter. The only interest I have is in the continued danger of illness which would not be recognized as entitling me to bring a suit to try and obtain enforcement.*

Food poisoning is not confined to the United States, but there is one thing that seems strictly confined to our cases and that is the fact that all of them of which the author has observed the findings of, are always laid to the fact that germs or bacteria are found, which are claimed to be the cause of the poisoning, even if the physicians diagnose the case as metal poisoning. If no germs can be found, they must "come out of the air" as at Kansas City, Kansas.

How differently they do things in foreign countries!

JUNE 18, 1928

At St. Annes, Canada, twenty-one employees of the Dominion Textile Company, were poisoned at the noon meal. Suspicion was at once cast upon three cans of soup which were used, but these were found entirely wholesome—then *metal poisoning was suspicioned* in connection with the soup which they consumed and it was found that the illness was caused by *mineral poisoning,* and so reported at once to Dr. Rosario Fountaine, one of the Provincial Government's medico-legal experts. Case reported in the Montreal Daily Star, Montreal, Canada, June 19, 1928, and papers throughout America. It seems to the author that investigation for mineral acid poisoning in America would be perfectly proper, instead of always looking for the bacterial poisoning.

THE WRITER BELIEVES THAT IF THE ABOVE REPORTED POISONING CASES ARE DUE TO ALUMINUM COOKING UTENSILS AND ALUMINUM BAKING POWDERS, IT IS HIGH TIME THE PUBLIC BE INFORMED, SO THAT GENERAL HEALTH MAY BE CONSERVED.

***Read Page 87.**

Elbert Hubbard's Scrap Book--

East Aurora, N. Y.

"He said, "I see." And they said: "He's crazy; crucify him." He still said: "I see." And they said: "He's an extremist." And they tolerated him. And he continued to say: "I see." And they said: "He's eccentric." And they rather liked him, but smiled at him. And he stubbornly said again: "I see." And they said: "There's something in what he says." And they gave him half an ear. But he said as if he's never said it before: "I see." And at last they were awake; and they gathered about him and built a temple in his name. And yet he only said: "I see." And they wanted to do something for him. "What can we do to express to you our regret?" He only smiled. He touched them with the ends of his fiingers and kissed them. What could they do for him? "Nothing more than you have done," he answered. And what was that? They wanted to know. "You see," he said, "that's reward enough; you *see,* you SEE."

"The Prophet,"
By Horace Traubel.

PART III

Review of

"An Opinion Upon Aluminum"

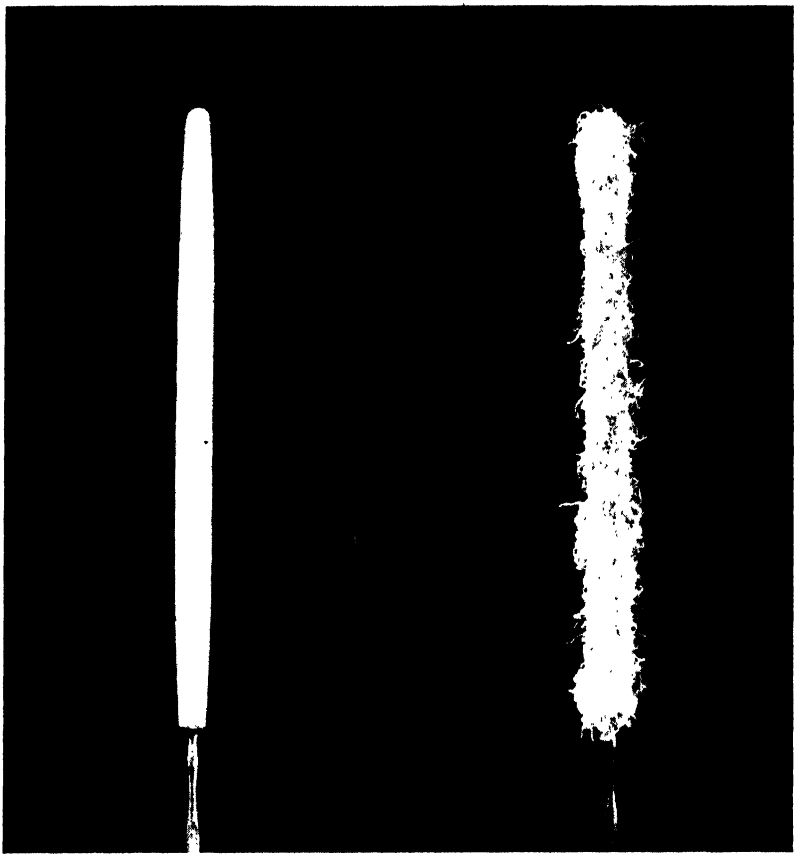


Fig. 1 **Fig. 2**

Several experiments made by the author were photographed and placed in "**An Opinion Upon Aluminum**" for certain specific purposes. They have reference to aluminum in medicines, from cooking utensils and in drinking water.

Figure No. 1 is an ordinary operating lance with a handle made of aluminum. Mercury (calomel) is extensively prescribed for bowel medication throughout our land, so the writer wished to determine if aluminum compounds were formed during the use of aluminum cooking utensils, alum baking powders or from other sources in hospitals, hotels and public eating places, and if they would form amalgams when taken internally, if patients resorted to calomel (mercury) for medicinal purposes.

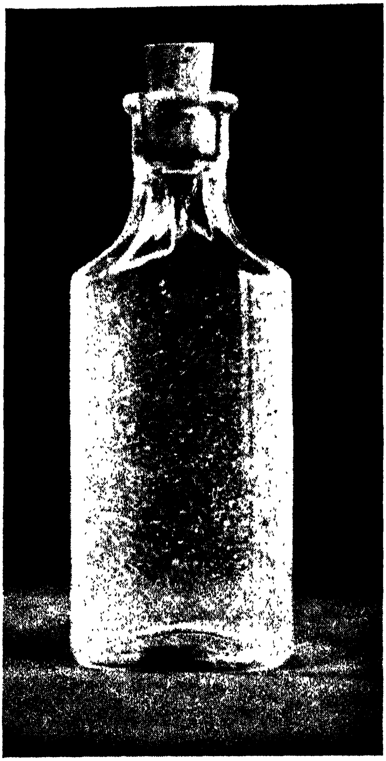


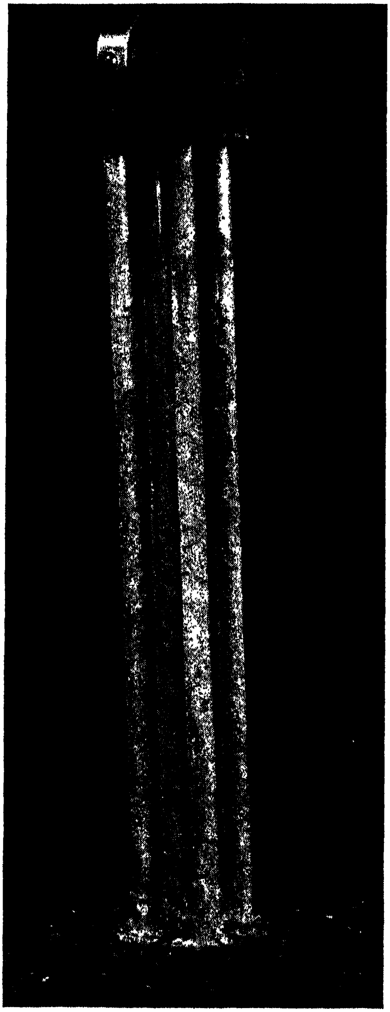
Fig. 3



Fig. 4

The activity of aluminum and its catalystic action is similar to radium, only to a lesser degree of action, so it was desired also to learn if the two metals combined would create a chemical which, when ingested, would be deleterious to the animal body.

Without any water being used in the experiment, ordinary mercury was rubbed over the surface of the aluminum handle, Fig. 1, with a chamois, for a period of a half a minute's time. Within twenty minutes, an amalgam, more than a half-inch thick, was produced upon the handle of the lance, but none upon the steel blade, Fig 2. When the amalgam was removed from the handle, an etching was visible to the naked eye. This test was repeated 1000 times with the same handle, using new mercury each time and an amalgam, one-half inch thick, would accumulate upon the handle, within a twenty minute period, each time. Figure No. 2 is a photograph of the 1000th test, showing the quantity of amalgam produced by each test, while Figure No. 1 shows how little actual aluminum was removed from the handle after 1000 tests, by the chemical action of the metals. Figure No. 10 will give the reader some idea how much amalgam in volume, a speck of aluminum metal will make in conjunction with mercury.



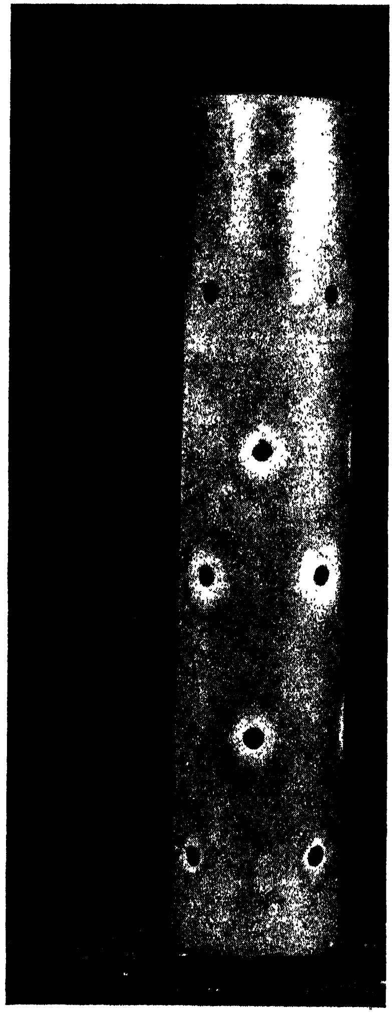


Fig. 5 Fig. 6

The next test of particular note was made to determine if ordinary dirt, filth or poison, dissolved from the surface of aluminum cooking utensils while foods were being cooked therein. Ordinary faucet water was brought to the boiling point in an aluminum dish and kept at that heat for one-half hour. The water was then placed in a clear glass bottle and the liquid showed a cloudy condition, as shown in Figure No. 3 and the precipitate was found to be aluminum hydroxide. This proved that the metal dissolved from the utensil in which the experiment was made. This was confirmed when the same amount of water was boiled, the same length of time, in an enamel dish and the water remained clear, with no aluminum hydroxide precipitate, as shown in Figure No. 4.

Figures No. 5 and 6 are of an instrument used for the purpose of "purifying" water for the sick and it is also used for aging whiskey. It is made of an aluminum cylinder, which covers two positive and two negative electrodes. The

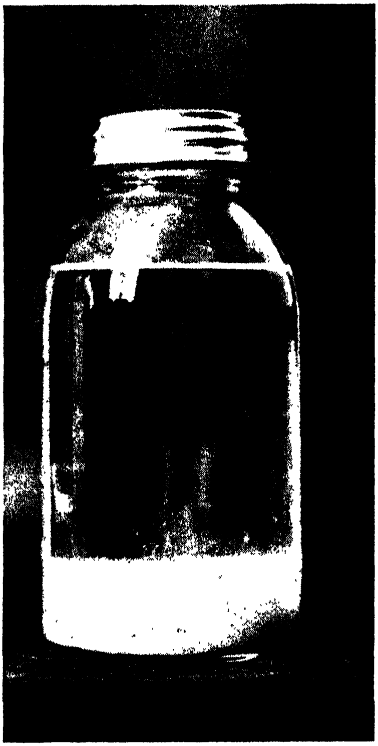


Fig. 7

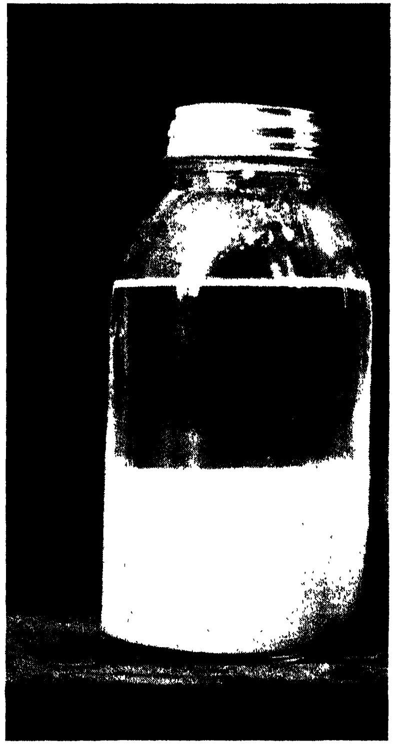


Fig. 8

sick are solicited to purchase the instrument for "purifying" their drinking water. They are told that the substances which can be seen in the water, after the purifying process has been completed, are impurities in the water, which were made visible by the instrument. Considerable poison, which can not be seen with the naked eye, remains in suspension in the water. This poison the patient consumes, according to the amount of "purified water" used.

The instrument is also placed inside a barrel containing liquor and is allowed to dissolve in the whiskey by an electrolytic process. Leaving the instrument in the barrel several days, with electricity applied, the whiskey becomes "aged" two years. The longer the instrument is allowed to rmain in the liquor, the more "aged" it becomes. Figures No. 7 and No. 8 show the quantity of poison produced in fifteen minutes and in one-half hour. This the consumer drinks and evidently thinks it **"Tastes so good."** The following clipping received on March 12, 1928, from a newspaper in Missouri, describes the effects of the use of the above named instrument.

"Police discover a plant for aging whiskey. An electrical heating device was used to make the whiskey seem "very old, in a few months." Bootleggers have an aging device that unfortunately works too well. It makes men that drink their product old in a few months, and often dead in a year or two."

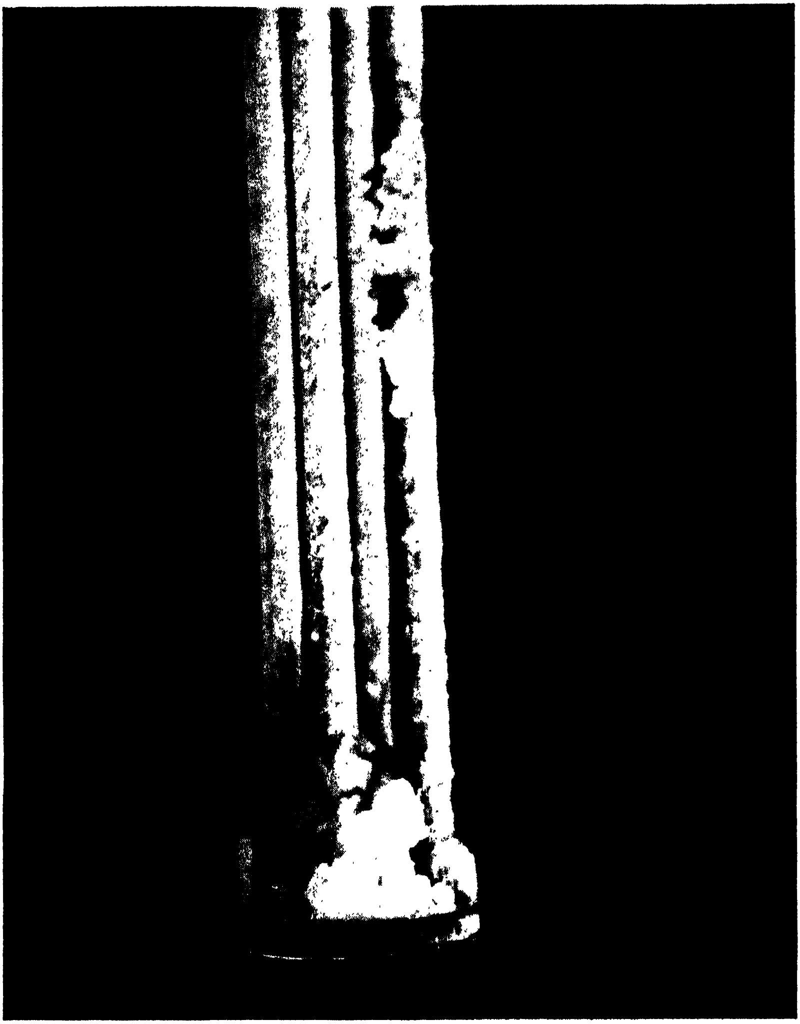


Fig. 9

When the instrument—Fig. 5 and 6—was allowed to stand in the can—Fig. 8—about twenty hours, the aluminum hydroxide was attracted to the electrodes without the electricity being applied, to such an extent that the aluminum hydroxide gathered on and clung to the sides of the electrodes especially at the bottom where it was solid, over one inch in height. This is aluminum hydroxide "gel."



Fig. 10

The electrodes were then cleaned of all the aluminum hydrox ide and placed in one pile—Fig. 10—which shows the quantity that is produced by heating the water one-half hour with the heater, and allowing the heater to remain in the water twenty hours after—without the electricity being applied. This shows that a considerable amount of the aluminum hydroxide is formed by just the contact of the aluminum with the cold water.

Review
of Articles in—
“An Opinion Upon Aluminum”

REVIEW OF ARTICLES IN—

"An Opinion Upon Aluminum"

IT MAY be of interest to the reader to peruse parts of the author's brochure *"An Opinion Upon Aluminum", which apparently has been the cause of such* an extensive and widespread interest in aluminum poisoning. Previous to the time the little book was written, no one in correspondence with the author would allow his name to be used or give the privilege of quoting from their writings or statements made regarding findings upon aluminum poisoning—for various reasons, definitely expressed. The author believes that this explanation should be made because the channels of information upon *"Aluminum Poisoning"* were rapidly being closed to the public.

PART OF ARTICLE ONE

"I thought I was the only one in the country that had discovered aluminum poisoning. Since, however, I have word that this article from Dr. Herbert Snow was published in the *Chicago Daily News*, October 17, 1912, which states:

"DANGERS OF ALUMINUM"

"I have just examined a mass of congealed fat left after bacon had been fried in a new aluminum pan. On the surface was a quantity of watery fluid, which, when tasted, betrayed the unmistakable saline acid taste of aluminum chloride. It was in fact, a highly concentrated solution of that powerful narcotic acid poison, and had obviously been generated by the chemical action of the common salt in the bacon upon the metal surface."

I find that in 1915 Dr. Cushman and Dr. Wiley of Washington, D. C., knew of them.

A scientist made the discovery at the University of Michigan in 1916, and put about three years' work on the subject and states:

"We did animal experimentation first, then the various food stuffs were taken up and finally we observed the effects upon humans, many compounds were isolated—hydroxides, oxides, nitrates, chlorates and various others. All except a few were harmful to man when taken internally—some by the mere contact with the epithelia tissue, such as gum tissue. We noted that there were throat involvements, gastric involvements, nephritis, and even gall bladder manifestations. The greatest affinity was for epithelial tissue, but connective tissue was involved in some cases. I thought the subject was well known and settled. However, if such is not the case, then I am glad you are presenting the dangers to the public."

I find that in 1921 a Toledo, Ohio, research society discovered them. Its president, who suffered terribly from stomach disease produced by some cause, became well in a short time after he stopped using aluminum, and notifies me that the society's findings are the same as mine regarding aluminum.

I am informed that a physician of Brooklyn, New York states:

"Frequently patients have come to me suffering from obscure digestive ailments which could be traced to poisoning caused by the fact of eating food cooked in aluminum utensils."

One of the best laboratories in this land located in New York City has informed me that:

"The report indicates that your observations are along most interesting lines and that your results are in harmony with those made by us and by others from similar types of tests."

A letter received from one of the largest makers of kitchen supplies in the world, both aluminum and other metal wares, informs me:

"I have read your letter of the 18th with considerable interest. It is very interesting to note the experience you have had with aluminum in conjunction with your practice. This coincides with similar laboratory experiences we have had. Con-

trary to popular belief, aluminum does act on foods left in containers made of this metal."

I have found by correspondence that practically all kitchen supply houses in the world have discarded aluminum—also, all of the largest canners and bottlers of food products manufactured in this country, state that they do not and cannot use aluminum in their cooking processes.

I do not have space here to give a hundredth portion of the reasons given why all of them do not use it that have answered me, but there must be a reason why I receive such answers."

PART OF ARTICLE TWO

"MISPLACED METALS

ANSWER TO STATEMENTS MADE IN TOLEDO PAPERS, DECEMBER 19 AND 20, 1925

This article was published by the Toledo Leader on February 5, 1926, Toledo, O.:

"A small piece of lead, in all about a thimbleful, was misplaced into the bodies of three of our great and good men, Lincoln, Garfield and McKinley, which caused the whole nation at various times to mourn their loss.

We have today a cooking utensil that gives off from itself a hydroxide which gets into our food when same is cooked in it with water that is not, in my opinion, fit to put into our stomachs.

God makes vegetation on this earth for a purpose. One purpose is to produce food for man who needs many elements to sustain life. These elements are prepared for the use of man in such form as they are found in fruits, vegetables and grains, and when taken into the body in that form can be assimilated perfectly in a normal being.

But such is not the case, in my opinion, when we take them in a raw state, as found in the earth, in baking powder, flour, city water or dissolved from aluminum cooking utensils into the foods in the form of a hydroxide or when they are pre-

pared in any kind of a laboratory by the human hand.

This is a fact so simple that even a child can understand it. As further proof, man cannot in the best laboratories in the world make a blade of grass, a leaf from a tree or a drop of blood.

There is a distinct difference between God's work and man's. God prepares the food with all the elements to sustain life by vegetation. Man is at a complete loss to make any of them that life can thrive on very long.

So in the matter of making of artificial foods, like bread, pie, cookies and all baked goods, man has found methods of making such things look pretty or pleasing to the taste. One of the principal ingredients used for that purpose is alum, when aluminum dishes are used, still more of the hydroxide is added to the product, so the amount of misplaced metal, in my opinion, in our bodies today is enough to make any thinking man pause and wonder why we need a phsician for every 666 people in Toledo. If half of this number go without physicians or employ Christain Science, chiropractic or other means of caring for themselves, we would have an average of about 350 people that require the entire time of one physician. If such a condition of health should exist among the animals of the field, I do not think the government would be long in exterminating the entire lot.

If any lack of, or over-abundance of any of the elements necessary to life if not properly eleminated, will cause an unbalancing of the human system, and sickness results. It is my opinion that the consuming of a pound of alum a week (as stated in Sunday paper, December 20, 1925) by a person who eats three meals a day, will contract that very condition in a short time."

The above article inspired the editor of the "Toledo Leader" (Joseph Keating) to make comment upon the general situation after the author's first article upon aluminum poisoning was published in the Toledo Times, Toledo, Ohio, Decem-

ber 13, 1925.* The reader can judge for himself, from the following fearless statement of the above named editor, as to what occurred to the Managing Editor and others in the "Times" office directly after the article appeared.

"TOLEDO LEADER" FEBRUARY 5, 1926
TOLEDO, OHIO

"DOLLAR LORDS BARE GREED IN DISPUTE ON ALUMINUM WARE"

"WELFARE OF PEOPLE NOTHING WHERE GOLD IS CONCERNED; DR. BETTS CONTINUES FIGHT FOR TRUTH IN CASE.

This is another of those true stories which prove beyond the power of contradiction that the American plunderbund completely controls the daily press, that they use their advertising power to intimidate publishers and editors and to suppress facts and important truths the people should be told of for their protection.

It shows also that the pirates will stop at nothing in getting rid of any one that interferes with their dollar grabbing.

It proves, too, that to the dollar patroits nothing is sacred—not even human life. It shows they will sacrifice the health and comfort of an entire nation if by doing so they *make money.*

Money is their *God,* their *flag,* their *constitution,* their *country* and their *ALL.*

THAT ALUMINUM STORY

About a month ago there was printed an article in a Sunday newspaper in which it quoted Dr. C. T. Betts as saying that aluminum should not be used for cooking purposes because it produces hydroixde, which he believes is dangerous to health.

Doctor Betts set forth plenty of facts to sustain his claim. They included the fruit of an investi-

*See Page XX.

gation etxending over twelve years, involving his own physical body. He told how pyorrhea and other mouth diseases disappeared when the use of aluminum cooking utensils was abandoned by his patients.

The article created a great stir and people began to throw away their aluminum cooking utensils. Local stores felt the effect. The sale of other cooking wares increased tremendously.

About that time advertisements of aluminum ware began to appear in the daily and Sunday newspapers.

Dr. Betts was declared to be wrong. Anyway, he is not a scientist—and he doesn't know.

FIGHT GOES ON

But Doctor Betts has not given up the fight. He maintains that proof of his "error" be given by reputable and disinterested men before he is silenced, and this in the interest of the public health and the well-being of the nation."

PART OF ARTICLE THREE

"HOW WE ARE POISONED BY FOODS

In the Literary Digest for February 20, 1926, I find an article on "Arsenic in Apples." The same was published in *The Lancet* (Royal Medical Journal), London, England, from which it was reprinted by ***The Digest.***

It states:

"The recent prosecution of Hamstead tradesmen for selling American apples containing from 1/30 to 1/15 grain of arsenic in a pound shows that the risk is a real one. Out of sixteen or seventeen samples purchased, five contained 1/100 grains or upward of arsenic."

"These cases raise again in an acute form the ever-recurring question of the doping of foods. A normal sounding meal may easily contain quite considerable doses of boric, benzoic, salicylic and

sulphurous acids and synthetic dyes in the earlier courses, and the drinks and the desserts may contribute their quota of arsenic. It is urged in the case of arsenical apples, as in all such cases, that the amount is small—well below the maximum dose."

Who wants to take poison in small doses continually when we are awake to the fact? In the above cases, the suits brought in Hamstead alleged that the illnesses were caused by such doses.

We have the report of Dr. Allerton S. Cushman of the Institute of Industrial Research, Washington, D. C.* He states:

"The ruling of the food inspection board of the United States Department of Agriculture with respect to the allowable quantity of tin salt permitted in canned foods, sets a permissible maximum of 300 milligrams of tin salts per kilogram of food in the can (2.1 pounds of material). In view of this fact, therefore, aluminum salts are not considered as poisonous as the salts of tin, etc."

It is my opinion that when one takes salts of aluminum three times a day every day for a year or two they may stir up considerable trouble for us even though they may be less poisonous than tin. When Dr. Cushman wrote his article in 1915, I judge there was quite an equal amount of both metals in use for kitchen purposes. At the present time, tin is practically unknown for cooking purposes in our kitchens, and aluminum is in almost every kitchen and used three times a day and frequently all night in fireless cookers.

We have, I believe, sufficient boric, benzoic, salicylic and sulphurous acids, synthetic dyes, arsenic and tin in our foods without adding by our aluminum cooking utensils aluminum salts at the rate of 35/100 grains for acid foods and 1-40/100 grains for alkali foods by cooking one pound of salted food one hour.

*Refer to Page 165.

Any one taking the time to use Dr. A. S. Cushman's figures will find that every meal for a family of four or five persons will have from 20 to 25 grains of aluminum salts when the food has all been cooked in aluminum. Then the subject becomes intensely interesting, not to mention all the other sources from which we secure the aluminum hydrate in the same meal, i. e., from our city drinking water, our bread or biscuits when alum baking powder is used, etc. We also receive the normal amount contained in the foods before cooking.

The purpose of this paper is to point out the fact that apparently very few people know that the metal, aluminum, dissolves from their cooking utensils in such quantities as stated by Dr. A. S. Cushman, also, that small doses of poison may cause disease if taken consistently three times a day, or in a single dose as appears to have been the case at Hamstead, England, recently."

PART OF ARTICLE FOUR

"ALUMINUM AS AN INTERNAL MEDICINE ALUMINUM COOKING DISHES ALSO MAKE MEDICINE.

Colloidal hydroxide of aluminum is manufactured in the United States; also in England, Hungary, France, Italy, Switzerland and Canada, and sold in drug stores in boxes and by prescription. I do not know if factories are located in countries other than those mentioned above, but plants in these countries are now operating according to published advertising of the manufacturer, and are furnishing metal aluminum to the world for stomach diseases. The "Works" in these various countries are evidently turning out vast quantities of the aluminum hydroxide, making it into a colloidal hydrate so it can be prescribed in powder and tablet form.

Aluminum hydroxide is recommended as particularly useful in the treatment of chronic affections of the stomach, and dyspepsia, gastric and

duodenal ulcer, gastro-succorrhea, and in conditions characterized by gastralgia, pyrosis, flatulence, acid eructation and other symptoms common to gastric disease. If the aluminum hydroxide is a medicine worthy of being such, then it is made in nearly every home in our land. Aluminum cooking dishes produce this medicine every time they are used for cooking food. When we cook food a short time, we get a small amount of the medicine, and the longer the cooking process continues, a correspondingly greater amount of medicine is produced. Acid or alkali foods will extract a greater quantity of the medicine in a given period of time than other foods, but all foods extract it whenever aluminum is used for cooking purposes.

Every person that eats food prepared and cooked in such dishes takes his medicine, it makes no difference if he wants it or if he does not want it; if he is ill or if he is well, or whether he needs medicine or whether he does not, and he does not know how much of a dose he is taking. If foods are left standing in aluminum dishes after being cooked, the process of making the medicine goes right on. It passes over into the food as fast as it makes it, so we may be sure to get enough. The Division of Health of the United States under the Treasury Department states "that the metal passes over into the food when aluminum is used as a cooking utensil," and also cautions against letting food stand in such dishes for some reason they do not give.

So far as I have been able to learn, no prescription is necessary in order to get the medicine from the dishes. When the patient is already taking it by prescription, there is no telling what quantity of the drug he is getting when he is also taking the additional amount from the cooking dishes. So the harm from an overdose may be of greater consequence than the real or supposed benefits obtained. It is so difficult to learn what we are taking by prescription today that few of us know

when we are getting the medicine both ways. At the present time, we have great numbers of people who do not believe in taking medicine. We have chiropractors, osteopaths, Christian Scientists, vegetarians and countless others, but all these take their medicine regularly three times a day, if they eat that often when they cook all their food in aluminum dishes or leave the food stand in the dishes after being cooked. Personally, I believe it is an imposition on them, as well as myself, to compel us to take medicine when we are well or otherwise when we do not want it; therefore aluminum should be labeled what it is and *what it does* when used, in my opinion, if sold to the public. It seems unbelievable that a chemical company or any one else could chop up chunks or slabs of aluminum metal to make medicine of it for a human being to swallow, yet that is done, and I understand is prescribed over the world for the above named stomach diseases.''*

COMMENT OF THE AUTHOR ON PART FIVE

Many public libraries have record files where one can find the full article, parts of which are quoted below, which was published by Good Housekeeping Magazine. The facts determined by Dr. A. S. Cushman are worthy of consideration, as he has given most interesting information. The author found that aluminum dissolved from his aluminum cooking dishes in 1913 and that illness disappeared when the metal salts were discontinued from his diet. In 1915, Dr. Cushman also found that the metal disolves from all aluminum cooking dishes while being used as such and computes the average quantities ingested in foods. Thus he proves beyond question that foods are contaminated by the utensils used for cooking purposes and that when certain foods are cooked without the addition of chemicals for counteracting action, a poison may be developed which may be dangerous for human consumption—also, that an alkali liquid (water and soda) caused a loss of the metal from the dish just four times as great as that

*Refer to Page 3.

dissolved by the acid liquids used in the experiments, in the same given time, when salt was added for seasoning purposes during the cooking process, a greater chemical action occured upon the dish than when the salt is not used. This is confirmation of the author's findings. Many other scientists have made like discoveries but the author believes that the following quoted statements published by such a prominent organization, can be relied upon as authoritative.

"THE TRUTH ABOUT ALUMINUM"

DR. A. S. CUSHMAN

"The tests were undertaken for the purpose of determining the truth about aluminum once and for all." That seems a long time.

"Aluminum utensils are of two kinds, stamped and spun, and cast. The lighter stamped and spun utensils are approximately pure, containing from .1 to .2 of a per cent of iron and a very small fraction of a per cent of silicum. The heavier cast utensils usually contains about 5 to 7 per cent of copper alloy.

"Salt was added to some of the tests because salt is usually present in cooking, so that point was taken into consideration. Vinegar was used with distilled water for the acid tests and baking soda was added for the alkaline. Tests were also made with well and city waters."

They found that "the same amount of metal by weight was dissolved from the utensils when 1/5 of a pint of vinegar in a quart of water was left standing cold for 48 hours as when the same solution was cooked for one hour."

The attack or etching on the metal by the solution was not perceptible to the eye."

"The actual loss suffered by the aluminum ware was an average of 30/100 grain per pound of acid liquid used per hour of cooking and with salt added 35/100 grain."

"Alkali liquid," (distilled water and cooking soda) "dissolved just four times as much metal

from the aluminum dish as the acid liquid did in the same given time." (1-20/100 grains per pound per hour of cooking.)

"Leading authorities on toxology hold that the insoluble aluminum hydroxide is non-poisonous in its nature. If, however, any considerable quantity was taken into solution that point is open to debate."

"It has been held that aluminum hydrate is redissolved by the hydrochloric acid of the gastric juice, forming aluminum-chloride, some of which might be absorbed."

Aluminum chloride is a powerful narcotic acid poison.—Doctor Herbert Snow, Chicago Daily News, October 17, 1912.

"It was found that alkalis would attack aluminum vigorously while it resisted most acids, so if a real danger existed it would be from alkali foods, especially when cooking soda was used."

"That black stains get on the light ware when alkali foods are cooked in aluminum and a greenish black gets on the heavier or cast ware when alkali foods are cooked." When acid foods are cooked, the kettles become bright and clean. To prevent discoloration he advises the use of a "quarter of a teaspoon of vinegar" (apple, synthetic or other kinds not stated) "placed in with the food." He does not state whether it is better for the greenish black to be in the food or not, but he advises using the acid so it will all get in the food. The acid also remains in the food; by this process the kettles can be kept bright.

"Tests were made to determine if by any possibility copper could be present in the solution used, but not a trace could be found by analysis."

In the preceding paragraph, he states that "there are attendant circumstances to be taken into account, viz: a *greenish black* discoloration (verdigris) was plainly visible to the eye on the cast ware which contains copper." Verdigris is poison, and any quantity, large or small, is not fit for human consumption.

I have never believed it possible to use more than 2 per cent of copper alloy with safety in a cooking vessel, yet in 1915 the average of cast ware made in that year, or before, from which samples were taken, was an average of from 5 to 7 per cent. It may be much higher since 1915, and I do not believe that the quantity of copper alloy used in cast aluminum is *public knowledge*.

"That extreme acid liquors had such slight effect on aluminum that such small amounts of aluminum salts could not be dangerous or deleterious to health," yet at the close of the report he finds that some aluminum companies recommend an acid for cleaning aluminum dishes, and he says this one "is a strong and most dangerous corrosive poison." Upon complete examination of the report, I find no list of acids which may be harmless or others that are dangerous corrosive poisons.

"That no alkali foods should be cooked in aluminum unless you put in an acid sufficient to produce a neutral salt." He does not state how to overcome a powerful corrosive acid in the food, but the housewife would deem the proper procedure from reading the article would be to put in the food an equally powerful alkali to produce a neutral salt, which, of course, would be in the foods. I cannot comment on such materials as food for man.

"That aluminum salts are considered less poisonous than the salts of tin." It is evident that a comparison is made with these two salts regarding their poisonous effects on the human anatomy. Such a comparison, in my opinion, should not be made because the hydrochloric acid of the gastric juice absorbs, neutralizes and destroys the poisonous effects of the tin salts and just the opposite is true of aluminum salts. That they attack and *absorb the hydrochloric* acid instead, and *still remain a poison in the stomach, which removes* **man's only God-given protection from poisons taken internally.**

I refer you to the Sixteenth Session of the French Congress of Medicine held in Paris, 1922, recorded in the *Comptes Rendus,* page 101, this remarkable statement: "Colloidal Hydrate of aluminum absorbs hydrochloric acid."

Coffee, 2 lb. 1 hr. at 30/100 grains, per hour	0.60
Cabbage, salted, 4 lbs. cooked 1 hr. at 35/100 grains per hour	1.40
Soup, salted, 5 lbs. cooked 3 hrs. at 35/100 grains, per hour	5.25
Potatoes, salted, alkali 4 lbs. ½ hr. at 1-40/100 grains, per hour	2.80
Meat, salted, alkali, 5 lbs. cooked 2 hours, at 1-40/100 grains, per hour	14.40
Bread, white biscuits, aluminum hydrate when alum baking powder is used	2.05
	26.50

The food prepared in this list would be considered sufficient for an ordinary family of four or five adult persons. Workers would naturally eat more and people with sedentary occupations less. If the food would all be consumed, all of the 26½ grains of aluminum salts would be taken, but if one-fifth of the food was left without being eaten, each member of the family would get an average of four or five grains per meal from this one source.

The quantities in this table are arrived at by using Dr. A. S. Cushman's statements, excepting on coffee and biscuits."

COMMENT OF THE AUTHOR ON PART SIX

In the following article, Number 6, the author propounded about sixty questions. The answer to almost every question is contained in the query. He believed that more information could be disseminated by the laity in making their own experiments and discussing them, than by giving scientific data to the reader. This proved to be true. So much interest was universally aroused

by the questions that the author thought best to have them included in this work.

WHY do we get a bitter taste after coffee has been made and left standing in an aluminum coffee pot a few hours?

WHY does tea look cloudy instead of clear when made in an aluminum tea pot?

WHY does a fresh egg have such a bad odor when fried in aluminum?

WHY do potatoes have dark streaks through them when boiled in an aluminum kettle?

WHY do little pits or apparent holes get into an aluminum kettle when cherries are boiled in it and allowed to stand twelve hours?

WHY does apple sauce or rhubarb turn to a dark green when left standing in an aluminum dish?

WHY does bread dough get black when you rub it on aluminum for a few minutes?

WHY do your fingers get black if you drive your car with a throttle made of aluminum?

WHY does an angel-food cake look dark with dark streaks through it after the batter is stirred in aluminum?

WHY do we get a light frost on vegetables when they boil until dry in aluminum?

WHY is it that baked goods do not stick to aluminum when taken out of the oven?

WHY is it that baked goods will not stick to metal wares other than aluminum if you sprinkle the surface of the wares with alum baking powder before the dough is put in? Aluminum does not need baking powder on its surface. WHY?

WHY do we get such a thick white scum on top

of the water when just plain city water is boiled in aluminum?

WHY does city or well water look like milk after being boiled two hours in an aluminum kettle?

WHY do bubbles form under the surface of the water in an aluminum pail?

WHY does an aluminum pail turn dark when rain water is left standing in it forty-eight hours?

WHY do your hands often look soiled when you get your meals at a cafeteria after carrying them in an aluminum tray?

WHY do people get sick when they eat salted fricassee of chicken boiled in and which has been allowed to stand in aluminum over night?

WHY does lemonade have such a very bad taste when made in aluminum?

WHY does a butterscotch pie filling boiled five minutes, then stirred five minutes in an aluminum dish, turn from a rich brown to a dark green color?

WHY does your tarnished silverware become bright and shiny when boiled five minutes in an aluminum dish with a pinch of bicarbonate of soda added?

WHY do all the bubbles in wild beer immediately disappear when poured in an aluminum dish?

WHY does an aluminum kettle get black when city or well water is boiled in it two hours?

WHY do we get so much aluminum hydroxide in the bottom of a glass can when city water has been boiled thirty minutes in an alum-

inum kettle and poured into the can and allowed to settle?

WHY do tomatoes, apple or rhubarb sauce make aluminum bright and clean after boiling five minutes?

WHY does ordinary lye or bichloride of mercury make a dust in an aluminum kettle after several hours standing when same has been cleaned with it?

WHY will the dish get black when cabbage is boiled in aluminum?

WHY do we get aluminum chloride after frying bacon in aluminum after the grease is congealed when we use ordinary table salt with the bacon?

WHY do we use aluminum in baking powders?

WHY is it that a person may have violent vomiting or diarrhea after eating an ordinary custard made with three fresh eggs, a pint of fresh milk and a half cup of sugar cooked three hours in an aluminum dish and left standing in the dish ten hours before eating?

WHY is it when ordinary cottage cheese is made and left standing in an aluminum dish over night that one cannot eat a good portion of the cheese without becoming ill?

WHY is it that when dough is mixed in an automatic mixer using an aluminum container for the mixing, the product is a different color than what it is when mixed in other metal containers?

WHY do cranberries turn from a bright red to a black color when boiled fifteen minutes in an aluminum dish?

WHY is it that practically all of the largest can-

ning and bottling works in the United States will not use aluminum at all in their process of cooking food for public consumption or aluminum cans for canning their products?

WHY is it after forty years' experience with most metals in making kitchen utensils, one of the largest makers of kitchen supplies in the world considers aluminum the most undesirable metal of all metals for food preparation?

WHY is it that aluminum is not put in self-rising phospate flours as it is put in baking powder also containing calcium acid phosphate?

WHY is it that so many people think that Dr. H. Wiley is still at the head of the chemistry department of our government, therefore do not think it necessary to inform themselves regarding what they eat from packages?

WHY do we use aluminum in our city water?

WHY do people become ill after they eat sea foods which have been cooked in aluminum dishes? This is especially true of oysters.

WHY will a peeled potato turn yellow while standing in water in an aluminum dish over night and then turn black after it is cooked?

WHY will the whites of eggs turn green when stirred in an aluminum dish with an aluminum spoon?

WHY do we get such a bitter taste when eating jello after it is allowed to cool and stand in an aluminum container eighteen hours?

WHY will substances like soap or ordinary jellies become "hard" or jell in enamel and not in aluminum ware?

WHY "Cook your rhubarb or fresh tomatoes in the discolored aluminum pan. They will accomplish in five minutes more than you could by scrubbing for an hour." (*Toledo Blade*, December 19, 1925, Toledo, Ohio.)

WHY is it when vegetables are "lightning workers" on aluminum as stated in the *Toledo Blade* that some people still think the metal is a good thing to cook food in?

WHY do we not get the same results when we cook in enamel, glass or iron?

IS IT NOT A FACT that every fifth adult that dies in the United States dies with cancer?

IS IT NOT A FACT that we have 50% increase per hundred thousand in cancer deaths within the last twenty-five years?

IS IT NOT A FACT that in countries where people eat only raw food, cancer does not exist, except in rare instances?

IS IT NOT A FACT that the hydrochloric acid of the gastric juice flows into the stomach in a normal person directly after the food enters the stomach?

IS IT NOT A FACT that a great many people look well, even gain weight, who think they have tumor or something worse in their stomachs, go to the hospital for X-ray observation for a week, nothing found wrong, the patient goes home feeling as badly as ever?

IS IT NOT A FACT that when aluminum hydroxide from aluminum cooking utensils is taken into the stomach, that one is hungry most of the time, and will frequently partake of food, to be relieved from soreness in the stomach? Does the aluminum hydroxide absorb the hydrochloric acid and thus produce abnormal hunger?

IS IT NOT A FACT when one is so situated where he cannot get food, he will frequently take bicarbonate of soda, some form of yeast, or colloidal hydroxide of aluminum in powder or tablet form, a drug extensively used for stomach disorder, to get relief from stomach distress?

IS IT NOT A FACT that hydrochloric acid attacks and neutralizes any or practically all poisonous metal salts except platinum and aluminum when such salts are taken into the stomach in ordinary amounts? I mean by ordinary, not a lethal dose.

IS IT NOT A FACT that hydrochloric acid has absolutely no effect on aluminum hydroxide as it has on all other metal salts except platinum? Is not the reverse true, that the aluminum hydroxide (hydrate) attacks, neutralizes, and absorbs the hydrochloric acid **INSTEAD AND STILL REMAINS A POISON IN THE STOMACH?**

(We find recorded in the *Comptes Rendus*—page 101—of the Sixteenth Session of the French Congress of Medicine, held in Paris in 1922 this statement: "Colloidal Hydrate of Aluminum absorbs hydrochloric acid.")

IS IT NOT A FACT that when the stomach is robbed of its normal function in this manner, that a greater effort is made by our God-given arrangement to expel such an element by only making more of the hydrochloric acid, and pours it into the stomach even at such times when there is no food to act upon, producing an acidosis condition?

IS IT NOT A FACT that when a cancer is present in the stomach that the patient always also has an acidosis condition preceding and during the time of the presence of the cancer?

IS IT NOT A FACT that hydrochloric acid when in the stomach, without food to act upon, causes an irritation to the stomach, and when repeated often enough generates a gas to keep the walls of the stomach from touching each other?

IS IT NOT A FACT that when more of this gas is generated than for the purpose needed, that we get acid eructation (belching), and when the stomach becomes more and more irritated from the same source, that one gets a blister, and that such blister becomes an ulcer, and frequently something worse?

IS IT NOT A FACT that aluminum was extensively sold from 1910 to 1915; in 1920, $41,000,000 worth of the metal was sold in this country and reached one hundred millions in 1925?

IS IT NOT A FACT that as a cause of death, cancer occupied sixth place in 1910 and third place in 1924?

IS IT NOT A STRANGE THING that the ratio of increase of cancer and stomach trouble cases in this country is exactly the same as the sale of aluminum?

AUTHOR'S CONCLUSION

Author's Conclusion

The deductions, after careful consideration of all the evidence presented herein, are as follows:

THAT:—Aluminum in its inorganic form, is poisonous to all forms of animal life when ingested.

THAT:—Sodium Aluminum Sulphate is common alum. It is used in the manufacture of alum baking powders. The overwhelming preponderance of the evidence presented in this volume fully substantiates this fact. To state that the substance is alum is correct—to say that it is not alum may be very misleading.

THAT:—Aluminum compounds are soluble, are absorbable and in many instances they are absorbed by the human body.

THAT:—Aluminum is not a constituent part of the human body and it is not a necessary element to its proper functioning.

THAT:—Aluminum compounds precipitate in the human body. In the author's opinion, there is no doubt about it. The four scientists' testimony clearly proves this contention, without question.

THAT:—The poisonous effects of aluminum compounds are inimical and as pronounced, whether taken from aluminum cooking utensils, alum baking powders, in drinking water or as when prescribed as a medicine.

THAT:—The evidence herein presented does not prove that aluminum compounds when ingested, are harmless but to an unbiased mind, there are substantial grounds to predicate an honest opinion that they are harmful or poisonous to the body.

THAT:—A powerful protest should have been made when the manufacturers of aluminum products appealed to the President of the United States, for the appointment of a commission or board to determine the question of the harmfulness of baking powders, while such learned, efficient and competent government officials as Dr. Harvey Wiley and his staff were in office at the Chemistry Division of the Agricultural Department. These were the proper persons to make that examination, until the matter was placed in other hands.

PART IV

APPENDIX

APPENDIX

All names marked * are of persons whose quotations are found in and are a part of the testimonies or evidence presented in Docket Case No. 540, Federal Trade Commission. For the examiner's official report in this case, the reader is referred to the records at Washington, D. C. The government made demand that it shall not be published in whole or in part by the author. It seems to be a very secret or confidential document. It may be possible that this demand was made at the behest of the manufacturers of aluminum products.

Every department of chemical and medical science is represented in the following list of persons. There are Research, Biological and Physiological Chemists, Physicians, Physiologists, Pharmacologists, Bacteriologists, Pathologists, Analysts, Toxicologists, Dentists, Philosophists, Authors, Lecturers, Medical College Deans and Professors, Instructors in Hospitals, U. S. Medical Inspectors, Presidents of Medical Associations and Directors of Laboratories and Hospitals. Their activities cover every section of the United States and Canada.

BIBLIOGRAPHY

Name **Page**

Allen, Timothy F., M. D., Author of The Encyclopedia of Materia Medica, 1874 71-73

***Allyn, Lewis B., Professor, Ph. D. Member of the Board of Health and Town Chemist of Westfield, Mass. Creator of the famous Westfield Pure Food Standard 31**

Averill, Edward M. Federal Examiner of the Federal Trade Commission, Washington, D. C. Examiner for Docket Case 540 35

***Balls, Arnold K., M. D. Associate in Chemistry, Dept. Pharmacology and Master of Science, University of Pennsylvania. Took up Pure Science, Columbia University. Member**

APPENDIX

PUBLICATIONS QUOTED OR MENTIONED

Publications marked * are quoted from the evidence presented in hearings Docket No. 540 Federal Trade Commission.

Part V

Miscellaneous

"By the fruit ye shall know the tree."

REMARKS UPON CRUSADE

Comments, testimonies and kind words of appreciatian for the work done in the crusade for better National Health are given below. Space forbids publishing the bibliography of the prominent persons quoted. A vast amount of correspondence from a wide area gives the same substance regarding aluminum poisoning.

TO WHOM IT MAY CONCERN:

The writer wishes to inform the many sufferers of stomach trouble "Her experience and the real cause". I was a sufferer from stomach trouble for many years and tried various remedies. Only temporary relief was obtained from any of the so-called remedies. My discovery as to the cause of my trouble came about in a peculiar way—I had been wearing an aluminum upper plate of teeth, made by a prominent dentist and was also using aluminum cooking utensils at the same time. After wearing the plate about two years, my mouth and throat began to get sore and my stomach was all out of order. Later on a sore came on my upper lip. My mouth and the sore annoyed me so, I went to the doctor to know the cause of it. He looked at my mouth and throat and said the trouble was from the stomach. I asked him if he thought the aluminum plate could possibly have anything to do with the condition of my mouth. He said "No." He didn't think so, that after my stomach trouble was relieved, my mouth would get all right again. As time went on, I got no relief from stomach trouble and the sore on my lip did not heal either, but was getting worse all the time. It dawned upon me all at once that the aluminum plate I was wearing and the aluminum cooking utensils I was using, were the whole cause of my trouble. Everyone knows how hard it is to keep aluminum ware clean especially when alkali foods are cooked in them. The same applied to my aluminum plate I wore. This experience caused me to discard all aluminum utensils in my home. Also my plate was cast aside for a rubber one.

In a short time the results were gratifying indeed—my general health became better. Stomach trouble disappeared after years of torture from the poison contained in the aluminum.

I trust my testimonial may be a warning to all aluminum ware users.

Yours respectfully,
Signed—Mrs. Grace Daugherty,
Ohio.

Your book has cost me a new set of cooking utensils as my wife used nothing but aluminum but she has recovered from an ulcerated stomach from which she had suffered for several years and I am saved doctor's bills and perhaps funeral expenses.

Stanley Sauvage,
Chicago, Illinois.

4070 Menlo Ave.,
E. San Diego, Calif.,
June 5, 1928.

TO WHOM IT MAY CONCERN:

We the undersigned persons do under oath testify that our physical enjoyments, such as improved digestion, proper peristaltsis of the intestines, improvement in heart action and proper elimination of poisons from the body is due to the experiment as found in a book entitled "An Opinion Upon Aluminum" edited and sold by Dr. C. T. Betts of the Research Publishing Co., 320 Superior St., Toledo, Ohio. We further testify that for 5 years we suffered from deranged digestion, palpitation of the heart, flatulence of both stomach and intestine, hot and cold flashes, cold feet and hands, constipation and Hypermic and Toxemic headache—that our children a boy 5 years and girl 7 years likewise suffered from a catarrhal condition that affected their entire alimentary canal resulting in Colitis and bloody flux and other derangements common to the body when poisonous salts are ingested into the body. We as a family have been a constant user of aluminum cooking ware and never could understand why we were called upon to undergo so much suffering. We studied diets, and ate proper combinations, and yet with all our selections of foods and care in preparation, we would have our ails. Dr. * * * a metabolist of San Diego thought I had an ulcer or cancer of stomach and after relieving me of $40.00 for an examination, and a diet chart, I decided he failed to end my suffering. My wife had Drs. * * *, * * * and * * * doctoring her for nervous indigestion and they failed to cure. My children would burn with fevers and were sickly all the time and I was very sorely disgusted and discouraged until I read by accident of the following facts. 'Disease and Early Grave via Our Modern Kitchen," by Dr. Wm. Held, General Director of the U. S. Health League, who in turn cited the following test of aluminum cooking utensils and credited Dr. C. T. Betts with the finding of aluminum salts in foods after cooking in aluminum ware. "Boil a given amount of water in any kind of aluminum ware—(Spun, Cast or Pressed) for a period of 30 minutes, let set for 30 minutes in a clear glass jar; do likewise with a porcelain utensil and compare the waters—

***—Names of physicians withheld. The author does not desire to injure any person or corporation, so the names of the physicians above omitted, can be secured by anyone interested in aluminum poisoning.

aluminum salts known as hydroxide can be seen in the water boiled in aluminum and the water boiled in porcelain will be perfectly clear". This I did and I ditched the aluminum. Since then our family has improved. Our physical derangements have fled and the bloom of the Hemoglobin life can be seen in our cheeks. Constipation, sour eructions, auto-intoxication, palpitation, catarrh and nervousness have been gradually losing their power in our bodies and we recommend the advice of Dr. C. T. Betts as found in his works to all users of aluminum and especially to those who suffer from any of the above named ails or ills and who cannot find relief or a cure in diets and drugs.

We further testify that we do this of our own volition and that we are not paid or hired by any doctors, manufacturers or salesman to endorse the above, but we believe in the following "Therefore all things whatsoever ye would that men should do to you, do even so to them, for this is the Law and the Prophets."—Matthew 7:12.

Signed by,

Mr. W. B. Collins.
Mrs. Wm. B. Collins.

Sworn to and subscribed before W. M. Duffield, Notary Public.

I have read the article in The Golden Age by Dr. William Held, early exit via stomach route, hashed up in Mr. Mellon's metal. With the statement of fact which Dr. Held brings out coupled with the facts that I know, we have scrapped all our aluminum. Why I have not done it before, knowing what I do and what I shall state below, is the strange thing.

Last summer a year ago Mrs. Lambert of this city, whose husband runs a large fishery, sent my family a large supply of crabs. Not having anything else quite so large as a good-sized aluminum dishpan, my wife put them into that, with some pepper and salt, set it on the gas stove and cooked them. Having lived here for nearly thirty years and having cooked crabs many a time, but not in aluminum, you can see that I was not specially impressed with this particular crab-feast. Well, after the crabs were cooked, I sat down at an old table with the dishpan in front of me, and began to "stab" crabs, cracking the shells and eating. I did not notice that some of the juice was dripping on my pants and shoes until I had finished. Then I noticed this, and brushed my pants and shoes, and thought no more about it. A few days later, I went into a shoe-shining place with this same pair of shoes on, and noticed that the leather was all pitted up, and that the boy could not properly shine them. Later I got out my pants and looked at them; and lo and behold! where the crab juice had touched them, they were eaten in holes just as though I had spilled nitric acid on them. Why this mess of crabs did not eat my stomach up must have been due to the fact that the gastric juices of the stomach neutralized the aluminum poison. You can readily see that I have had enough experience with aluminum to cut out its use. I thought this would be interest-

ing, going to show that you are giving a straight story about aluminum as used in kitchen service.

G. M. Kitzmiller, Massachusetts.

I sure have been giving aluminum cooking utensils the D———l over the radio and in articles for publication. I have had some cases that have improved rapidly since they quit using aluminum cooking utensils.

Dr. J. H. East, Denver, Colo.

I cooked * * * wheat flakes in two aluminum sauce pans. They weren't new ones; had been used; but no holes in them. I just wanted to see what effect food would have on the aluminum. One kettle I let the wheat flakes stand for ten days, dry right hard on it. Well in ten day's time that kettle had six holes in it and large-sized ones at that; the other kettle I kept moist and let the mush ferment on the back of the stove, and it has two large holes in it. And all in the bottom it is rough and tarnished where the aluminum has been taken right off, etc.

Mrs. George W. Smith, Idaho.

You can use my name freely as one who is opposed to the use of inorganic minerals in foods and medicine; to the use of aluminum products as kitchen utensils, baking powders and aluminum compounds in foods. I shall be pleased to cooperate in the dissemination of this truth. Have recently read one of your books and find your investigations in accord with my experience regarding aluminum.

Josef Reed George, Ph. D.,
Cleveland, Ohio.

We do not mind giving you a little light as to why we published the articles by Dr. Betts and Dr. Held. You probably know that a vast amount of money has been spent in this country in recent years in the advertising of aluminum cooking utensils. Like everybody else, the editor of * * * believed these advertisements; purchased aluminum ware, and used it exclusively in his home for years. Conceding that if it is good to cook in it would also be good to use as a table-top, he purchased for his kitchen table a sheet of beautiful new aluminum, bent it to fit the table-top and rather proudly invited his wife to use it the next time she had in mind to make any pastry. She did so, and when she had rolled out the crust for a pie (the editor admits that nobody should eat pie, but most Americans do,) we give you our word that that pie crust was as gray as your hat, and was thrown out because we would not eat it. Are we correct in understanding from your letter that you would have considered it good housekeeping to have gone ahead and eaten the pie, and would you consider that such an attitude toward food discolored by aluminum would entitle you to pose as an authority on food, sanitation and health? This is an experiment that you can try yourself with very little difficulty and not much expense; and obviously, if a sheet of pure aluminum is not a fit thing to use as a mixing board, it is not a fit thing to cook food in. We

would like to have an expression from you as to what you think about this very item. Since we published the article by Dr. Betts and Dr. Held we have begun to receive letters from our subscribers which would make us wonder how this matter could have remained covered so long. The only possible explanation we can give is the love of money and the fear of offending those who have it and who want more of it.

Mr. Clayton Woodworth, Editor "Golden Age,"
New York City.

While cooking some carrots on a gas range in the basement, they boiled dry, burned a hole right through the pot, so I lost pot and contents. That pot did not melt or it would have shown on the stove.

Mrs. R. M. H., Pennsylvania.

I had been a sufferer with my stomach and it seemed to be all I needed—I threw out all of my precious aluminum (very reluctantly too) and all of my troubles disappeared.

Mrs. D. R., Ontario, Canada.

A friend of mine had a new servant girl who suddenly developed an ulcerated finger—took her to his doctor as there was no visible sign of how it came to happen. The doctor asked if they used aluminum cooking utensils—yes—If they cleaned them with steel wool—yes—That is it.

Mr. I. O. A., New York.

When the (goat) kids get to be about a month old, or as soon as they start to nibble at hay, then we boil rolled oats and mix with the milk we feed them from pans. We have discontinued the use of aluminum ware for household cooking, but still used it to cook the goat feed and other uses about the barn. After adding the grain to the milk one of the best kids developed a very bad case of bowel trouble. After checking the whole feeding process we decided to cook the oats in enamel ware instead of aluminum, and today the wee nannie is as healthy as she was on the whole milk diet.

Mrs. C. W. F., Ohio.

I am in a position to spread the knowledge, knew of it ten years ago and never used the ware, but had no scientific proof such as your book gives. Am glad to come in touch with your work. Truth crushed to earth will always rise again.

Miss B. C. D., Philadelphia, Pa.

I made lot of converts and get inquiries by the score regarding the ill effects of using aluminum and had all the various kinds of baking powders sold in town analyzed at the Collegiate Institute Chemical Laboratory and roundly condemned them that contained alum.

Dr. H. F. McK., Ontario, Canada.

I was much gratified to have made your acquaintance at Chicago as I believe that you have an **important message to deliver.**

Dr. A. W. H., New York City.

I have read several of your articles on aluminum in the * * *. Regardless of what others say I believe you are right. My conviction is firm enough that I threw away all our aluminum and bought enamel ware instead.

Mr. H. G. F., Michigan.

I am certainly glad to see the fearless stand you have taken on aluminum poisoning. You are surely in the right for I have proved it to my own satisfaction in the wonderful change I experienced after we discarded it entirely.

Mr. I. M. M., Red Hill, Pa.

All mothers are anxious to have things right for their children, even if they have to throw away a whole kitchen-full of aluminum.

Mrs. N. C. K., Illinois.

A neighbor who is 88 years old and has been an ardent reader of your * * * magazine for several years, decided that maybe his stomach trouble might be caused from aluminum, so discontinued its use and his relief was almost instantaneous and he improved in health right along. Another neighbor, a young lady, was ill most of the time with severe pains in her left side and had been to Drs., both medical and chiropractic, and had tried various remedies and still the pain continued. They discarded their aluminum cooking utensils and in a few weeks time the pain left and has not returned and she has been able to do more work than ordinarily.

Mrs. T. N., Washington.

I am reading your article in the * * * with great interest and am glad we have such courageous and fearless men as Dr. C. T. Betts. "God send us men".

Mrs. E. B., Buffalo, New York.

Dr. Alsaker in the January issue of the Correct Eating magazine has seen fit to severely criticize your views in regard to the dangers of using aluminum ware for cooking utensils. I don't know just what your contentions are, but if they are based on the claims that aluminum ware is unfit for high pressure cookery, according to my experience as well as that of some of my friends, then, your contentions are absolutely correct.

Mr. E. B., Philadelphia, Pa.

January 3, 1928. We have used no aluminum to cook in since about 1st of Dec. and there is a great change in Mr. L—'s general health as he can go to bed and sleep 8 hours at a time, something he hasn't be able to do for years. His stomach trouble seems much better and at times he has

such an itching sensation just as though the ulcerous condition is healing.

Mrs. J. A. L., Arizona.

You may be interested to know that since leaving off aluminum in January, a gastric ulcer which has been active for ten years in my case has become dormant or healed—many thanks for your "opinion". It has done more than Specialists, Xrays or Doctors for me. I assure you I shall never stop telling folks about it.

Mr. F. A. S., Connecticut.

We discarded our use of aluminum ware after reading and trying out test of aluminum in * * *. I tried out the boiling ½ hour and 'twas just as stated in * * *. Personally I have not had my sick headache spells I did have. Having seven children the eldest only 12, I cannot replace the thrown away easily—but the inconvenience is better than to injure the health of nine people in my care.

Mrs. A. B. H., Pennsylvania.

You are to be congratulated upon your research work in connection with this important subject, as the writer in his work of Dietetics has long since held the view that aluminum ware and the cooking of foods therein was destructive to health, but previously no scientific information on this subject was obtainable.

Dr. R. R., New Zealand.

I have been wondering about aluminum for a long time. I could taste a peculiar taste in milk after it had been in an aluminum pan over night. Also water did not have a good color after boiled in said dish. Sometime ago I discarded an aluminum double boiler because it made custards and sauces look black, at least on the part next to the bottom of the pan. I shall get rid of all my aluminum dishes right away.

Mrs. S. H., Massachusetts.

For years I have dissolved "Packer's Tar Soap" to make a shampoo for my head. Some time ago I dissolved some in an aluminum dish, but did not use all the shampoo at that washing, and left it in the dish for future use. Next time I washed my head I dissolved a little more soap and added it to that in the dish, which had coagulated. I rubbed it well into my head but could not make a lather. I thought it was the hard water, so put some washing soda into the water, but to no purpose. I rinsed my hair well and dried it, but found it hard to comb. It had a metallic feeling. I rubbed vaseline into my head and succeeded in getting it straightened out. But when I coiled it on the top of my head, it felt like a coil of very fine wire twisted together. The next day I rinsed my hair well and still it felt wiry. I rinsed it again. But with all my care my hair is breaking off. I was very much puzzled at this experience until I read * * *. I have had other experience, but had to have this crowning one to get my eyes opened to the evil effects of using aluminum in any form.

Mrs. E. B., B., New York.

I have no mere opinion on this aluminum proposition when it comes to high pressure cookery. It injured my kidneys severely, and when I cut it out, there was quite an improvement in my condition in two or three days and in about 10 days the trouble completely disappeared, although made no change whatever in my diet. However, I would like to say that I have been very careful about what I eat for the past several years, and I have some close friends who are very careful too, so I was telling them about my experience with aluminum ware cookery. One of them spoke up and said, "Listen here boy, since you mention that, me and my wife and two children are having a whole lot of trouble with our kidneys and teeth. We didn't have that trouble before we started to using aluminum ware, and I just got a "sneaking" idea that it's the cause of it, so I am going to stop my wife from using it, and I will let you know how we come out." Sure enough, in a few days, this gentleman came to me and told me that the trouble had ended as they had cut out using aluminum ware in favor of * * * and that they would have no more of this aluminum "stuff" in their house.

Mr. E. B., Philadelphia, Pa.

The Aluminum Plant in E. St. * * *, Ill., was located not far from my brother-in-law's residence, * * *. He is an engineer at the Big Four Roundhouse but his natural ability is gardening. He had the prize lawn in E. St. * * * but has had to fight the killing effect of the white dust from that plant on his grass, trees and plants, ever since they located it there. At first it killed all vegetation and they were compelled to raise the height of the big chimneys to carry the dust into the upper air. Before the plant was constructed there was a large lake on the site used for fishing and hunting sport. The plant filled in the lake with the earth through which the metal must pass in the manufacturing of aluminum ware and the very first unloading into the lake killed all the fish in it and vegetation near the water.

Mrs. A. B. C., Oklahoma.

In regard to the letter you sent Mrs. C. J. * * * would say she died three days later than Mr. * * * (my father and mother). We had a council of Drs. for her and a trained nurse but it did not do any good. Yes, the chicken was cooked in an aluminum kettle but they ate some of it once and it was all right. Then the kettle was set on the shelf of the stove and not eaten till later and they (my father and mother) were taken sick about 6 hours after they ate it and my brother two hours later (age 35).

Mrs. H. V. C., New York.

We do not use aluminum cooking utensils for the reason that aluminum is very readily attacked by salt, and as practically all of our products which are cooked contain salt, aluminum is not a practical metal to use.

H. J. H., Pittsburgh, Pa.

Where I cook we have a small coffee pot made of aluminum in which the coffee for breakfact is made for the help. After reading so much about it I stopped drinking the coffee from this utensil, making our coffee for my helper and myself in an enamel dish. For something like a year or more I had been troubled with a sore mouth at quite frequent intervals, my mouth feeling as if I had severely burned it and it would be so sore at times that I could hardly eat. After I stopped the use of the coffee pot for some days, I had no trouble, but after a week or so I was in a hurry one morning and again used the coffee already made in the coffee pot and which had probably been standing an hour or more where it would keep warm but not boil. After using this coffee, I began again to have a sore mouth and by noon was in such misery that I could scarcely eat any dinner, yet I never once thought of the cause, until I awoke in the middle of the night that same night, my mouth and throat burning so I could scarcely stand it, when all at once the thought struck me, WHY I had this trouble. I am through with the use of aluminum myself for all time, and have a good supply of expensive pieces of it in the house, too.

Mrs. E. E. E., Michigan.

I have been using aluminum vessels exclusively for twenty years—in which time my health has gradually declined—until this winter things came to a crisis and my physicians said I must undergo an **Exploratory** major operation **at once.** Just before the time set for the operation, Dr. Held's article was published and came to my attention—he diagnosed my case so fully, that I immediately discarded all aluminum vessels and have been, since, slowly gaining both in strength and red blood corpuscles.

Mrs. M. H. C., Kansas.

It was with interest that I read your series of articles on aluminum and want to commend you upon your stand in the matter of public health for **he who lays aside** his personal interests to take the time to try to benefit humanity is to be applauded. I have more than admiration for a **man of your strength** and **want to help the good work** by spreading the gospel of truth about aluminum.

Mr. M. E. M., Pennsylvania.

After going over this book it appears that you are taking the initiative on behalf of the people in this country to warn them against the use of aluminum. I discarded the use of aluminum some time ago insofar as in most cases I could detect a metallic taste when food was cooked in aluminum, especially in the brewing of coffee.

Mr. R. O. F. W., New York.

I was much interested in the articles on aluminum, as I myself am a chemist. I no longer use aluminum. I heard indirectly that all the women folk at one of the churches were in discussion on the matter after their service on the Sunday morning after the talk was broadcast. We propose to repeat it from another station in a week or so and by

the time the rest of the reprints are distributed, I guess some impressions will have been made on people's minds on the matter.

Mr. H. W. A., Australia.

I have a right to life and will do my best to preserve it to the greatest extent, although it is difficult to earn a living. For this reason I have discarded every piece of aluminum in my house at considerable expense compared to my resources, and you may be interested to know the result after two weeks cooking in utensils other than aluminum. Am not aware of the cause of my improvement in health except for the reason above stated, as I have been careful to change none of my habits, but the natural result has been that I have not suffered a serious cramp since that time. I have more ambition than before, and I eat less than I did before, which is a good asset at my weight.

Mr. O. A. K., Detroit, Mich.

Because those who sell aluminum ware have soaked you for what you are doing is not to be taken seriously for there are others who are very grateful to you for calling their attention to this great curse to man's health. Wish to say that I boiled some water in an aluminum coffee pot for about 15 minutes and poured it out and it had turned to a dingy bluish color. Now it is reasonable enough to me that if there wasn't something in that ware that wasn't all OK that water would not have changed its color. Anyone doubting this statement can convince themselves by going and doing likewise. Again, suppose you put an aluminum spoon in fruit and leave it there for awhile and take it out and see what you find. About a year ago I ate dinner in a certain city where they cooked in aluminum. This was in a cafeteria. Well, about two hours after I was taken violently ill at the railroad station and rushed to a doctor's office where he discovered I had been poisoned. He gave me some quick action pills and pumped me full of dope and asked me for my home address, where I used to live and if anything happened where I wished to be buried or words to that effect.

Mr. J. W. H., North Carolina.

Here is my "aluminum testimony". For several years I had been suffering from a serious stomach inflammation, which a long fast (two years ago) seemed to remove. Since that time I have eaten very carefully, but in spite of correct eating my old trouble returned in a little more than a year. Three months ago, after convincing myself that aluminum cooking utensils were poisoning our food, for we had been using aluminum, we discarded all aluminum cooking utensils. As a result, I don't know that I have a stomach. I have regained my normal weight, and both my wife and I are in better general health than we have enjoyed for some time.

Mr. N. A. Y., California.

I have heard some very interesting experiences from several people. One lady in particular from Shoal Lake, Man., told me of a lady who made her lemon pies in aluminum pie plates, which eventually made her very ill, and this same lady died of cancer; also that she herself used sodium chloride (common table salt) with water in an aluminum dish as a silver cleaner, and by just dipping it in this solution it would remove any stain from the silver. Sodium bicarbonate (baking soda) will do the same thing (in an aluminum dish).

Mrs. R. J. P., Manitoba, Canada.

I have read with interest the book and would like to have some for my patients to read. It was an eye-opener to me and yet when one considers, it is very feasable.

Drs. A. & E. F. S., West Va.

I have a son who has been troubled with ulcers of the stomach. A friend loaned us a copy of Dr. Betts' book. We discarded our aluminum at once and our son shows an improvement in about two weeks time, so I am anxious to have a book of my own, to let my friends read it, as a number of people we are acquainted with are troubled in the same way.

Mrs. W. W., Massachusetts.

I have discarded all aluminum cooking utensils, and have a new outfit of white enamel and * * * pyrex ware, on the strength of this suggestion, feeling that the health of my household is too serious a matter to take any chances with.

Mrs. B. R., San Diego, Calif.

Your letter dated June 2nd was received at this office today. We have no aluminum cooking utensils in our kitchens, although they are commonly used both in household and restaurant installations. It is our belief that aluminum is susceptible to the action of salt and the acid constituents of certain foods such as tomatoes. This fact, together with the inability of aluminum to withstand high steam pressures, has made it seem inadvisable for us to use aluminum equipment.

C. S. C., Camden, New Jersey.

I hope we will have some more articles from you in the * * *. You are doing a much needed work for your fellowman, as well as for your profession.

Mrs. A. B., Oklahoma.

In Dr. Betts' researches, has he specially investigated the question of aluminum fumes, arising from this metal in cooking? For example, we have what is called the * * * waterless cooker, which is a device made of aluminum, for cooking foods in their own juice. It is a new apparatus, but since receiving your booklet we have only used it with foods placed in an enamel pan, not in direct contact anywhere with the aluminum. Is there danger from the fumes of aluminum in such a case? Since receiving your booklet,

and also the report published by the * * *, we have entirely ceased the use of aluminum vessels and have found benefit by my so doing. Please accept sincere thanks and best wishes for the continued success of your work.

Mr. W. E. C., Montreal, Canada.

I am a nurse. This means that wherever I am I shall use this knowledge for the benefit of others. My own kitchen ware is the * * * aluminum. I have consigned it to the city collection and have purchased enamel ware.

Mrs. W. B. Y., Ohio.

I have discarded about $75 worth of cooking utensils and restocked with enamel. My husband travels a great deal and he has so often said that he can't understand why it is that on the road his stomach never bothers him and when he is home, food does not agree with him, particularly coffee, which I have always cooked in an aluminum percolator. Your book seems to contain the answer and I shall certainly do my share to help the good work along.

Mrs. F. W. V., Illinois.

I just read a reply to your aluminum articles from Dr. Alsaker in "Correct Eating". Suppose that you have read it ere this. But it is still aluminum even though he whitewashed it. The water in Mo. and Okla. will eat an aluminum pail full of fine holes, etc. He said water did not affect it. His comparisons between glass ware, brick houses and aluminum do not mean a thing to the fair-minded. When they can fix aluminum so that it is not affected by that which it may be in contact with, as glass is not generally affected, then the Dr. may be justified in the comparison. His "say so" on the same shows that his thinking apparatus is———. We have set our "A" ware aside and glad it is gone.

Mr. E. W., Oklahoma.

There is no question but that there is need of education in regard to chemical action on aluminum. I was amazed at a woman who was giving cooking demonstrations here. She was asked how she kept her aluminum bright. She said "Sometimes I cook tomatoes in it" and failed to say what she did with the tomatoes! I have no doubt she serves them, as she said 'cook'. If she had said 'boil' I might have thought she would throw them away. It is evident that some progress is being made in awakening people to the fact that aluminum is not the perfect material for cooking utensil as claimed by the manufacturers.

Miss N. D., Kansas.

I wish to extend to you my sincere appreciation for the article appearing in the * * * and also, for your letter and book on aluminum. We have used aluminum for a number of years and during the last two years I have suffered with sour stomach and gas in stomach and bowels. I doctored but to no satisfaction. One told me that I was getting poison from some source but could not tell me the

cause. I was in great misery almost night and day. I lost weight and my friends thought I was going to die. I had my urine tested because my kidneys hurt me at times and the test showed an excessive acid condition. Last April our home was destroyed by fire which burned all of our aluminum cooking utensils, and then the * * * agent paid us a visit and we purchased a new supply of poison. As soon as I read your article in the * * * I junked the aluminum and bought enamel and iron to cook in and today I am feeling fine—in fact I began to improve in health as soon as I quit using aluminum or very soon after and I am **thoroughly convinced** that you are right.

Mr. F. D. F., Virginia.

Your letter of May 17th and interesting papers on food poisoning received last week, also the much respected and valuable book on "An Opinion Upon Aluminum" received. Your opinion and work on same subject is eagerly read and deeply discussed among friends and relatives, many of them are chemists and physicians. The aluminum utensils were quickly replaced with enamel ware in many of our respective families.

Mr. I. L. V., Massachusetts.

Some time ago I had the opportunity of looking over your work on aluminum and its effect on the digestive tract. Is it possible to secure a copy of this for use in our advanced Nutrition class at * * * University? I am convinced there is sound reason for your arguments and would like the class to see the evidence you have presented.

Miss H. T., Ohio.

I have discarded my aluminum ware as I have suspected for some time that it was not the best thing to use. I had a dog that died of cancer in the rectum as near as I could find out. His drinking pan was aluminum ware. It was filled with water all the time and it looked like it was bubbling up with blisters. I have a little aluminum pan I have been using on top of an oil heater. It is always filled with water and it has a powdery substance all around the edge.

Mrs. M. R. W., New Jersey.

I must congratulate you upon the splendid work you are doing in helping to educate the public upon the dangers to health of aluminum and its compounds and to wish you success in your pioneer efforts. Where you now lead others must follow. The subject is too vital to be long ignored. As one who has been severaly poisoned with almost fatal results and is now a complete physical wreck, consequent upon the use of aluminum cooking ware,—I can appreciate the good work you are doing in the public interest and sincerely trust it will receive due public recognition. It is very comforting to me to know that you and others in America are directing public attention to the risks incurred and dangers involved in the use of aluminum culinary ware and I sincerely hope, for the sake of common humanity, that you will continue your efforts until success is achieved. I am not aware of any similar movement in this country.

Mr. E. W., England.

A year ago just at this time my son was very miserable, was X-rayed twice in Boston, the first pictures the Drs. were undecided as to what the trouble was. The second picture taken the next day they decided it was ulcer of the stomach. They put him to bed for two weeks and ordered a very strict diet. It was June before he was able to do any work. He is still on a diet but not so strict as at first. He was feeling quite badly three weeks or so ago, when a friend of his sent one of your books for us to read. This man's son-in-law had been troubled just as Clifford had been a year ago, and they had disposed of their aluminum and at four weeks time, he was much better, also their baby of two years of age had not been well and he was improving also. We could only have the book a few days, as this friend wanted to have others read it. So you see, Doctor, I wanted a copy of my own. We shall always be grateful to you for having read your book. We have discarded all of our aluminum for white enameled ware and oven glass. We all feel so encouraged over the improvement in Clifford.

Mrs. W. W. Massachusetts.

Barranquilla, (Columbia)
South America.
July 16, 1928.

Dr. Chas. T. Betts,
320 Superior Street,
Toledo, Ohio.

My Dear Doctor:

I am delighted with the reading of your interesting articles, published in the "Journal of the American Association for Medico-Physical Research" of April 15th and June 15th, 1928, about the aluminum compounds and the use of alum in baking powder and alum in aqueduct in drinking water.

You are right, my dear Doctor. I am here fighting against the chlorination of water. Chlorine also produces impotency. Please read the John H. Clarke's "Materia Medica." The same you say about alum may be read about chlorine in Materia Medica.

I wish to congratulate you, for your attitude in saying the truth to your countrymen.

I sent you the articles which I have published here and I have gained a big victory, because the people wish to have ozone and not chlorine in the new aqueduct.

Please inform me about the results of your campaign.

Waiting to hear from you soon, I remain,

Yours cordially,

Dr. F. V. T.

A CONFESSION

In the early part of the present century, a company was organized for the purpose of manufacturing tooth paste and other toilet articles, such as tooth brushes, tooth powders, etc.

The brushing of teeth at that time was usually done by only those of the laity who had artificial dentures (false teeth). It was a rare thing indeed for a youngster under twenty years of age, to own a tooth brush and a more rare occurrence that he ever used it. Often children's teeth were neglected by the parents, who apparently did not know that the "six years" molars came in back of all the "first" or "baby" teeth. These molar teeth would decay and often cause their loss.

From this fact the leaders of the organization above referred to, conceived the idea that tooth brushes ,pastes and powders could be sold in great quantities, if we could just convince the parents that all their children's teeth should be brushed about three or four times a day—it even was hinted that probably many grown-ups would catch the "disease" and would also buy some of our powder and paste, probably some of the tooth brushes also.

How to bring in larger dividends to our stockholders was the paramount issue and the line of action decided upon was to have our agents attempt to interest school boards throughout the country, to place dentists in schools to make examination of the pupil's teeth and incidentally to recommend our tooth products. This scheme utterly failed. Not a school board "fell for it." This attempt upon our part brought out several interesting features. Wide publicity in newspapers was given to a discussion of the subject and the dentists themselves were much interested in knowing who or which one should have the "privilege" of meeting all the pupils. This apparently gave an undue advantage to the lucky one who would succeed in getting the appointment for the work.

This was new business for school authorities and great diplomacy had to be exercised by our general agents in conducting the campaign throughout the country. After much effort and money spent on our part, school boards were induced to consent to have the appointed dentists make the examinations and recommendations but not in any case were school funds appropriated to pay for this work. Our only hope was to just "keep up the work" long enough and the habit would become established, at which time the school boards would be compelled by popular demand to do our advertising free. This is now being done to an extent never dreamed of, even by our worthy president of the company. Even the dentists are now being paid from the public treasury, in some cities, to do the school work (examinations, etc.)

Usually the dental organization was visited in each city for the purpose of selecting a dentist or dentists who would be properly instructed along certain lines, for instance, he was not to ask any of the children examined, to call at his office; he was not to recommend any particular dentist to do the work necessary to be done; he was not to do any work at the school for which he received compensation; he was to fill out a chart or card (furnished free) showing what the pupil needed along dental lines, etc. Our previous experience taught us that no particular goods should be recommended. These various requirements were necessary to safeguard the financial interests of all the members of the dental association. The non-ethical as well as the ethical dentist, profited by the card system which the examiner used for the children. They all received packages of our goods free of charge, so even the parents who brought the children for dental service, would be instructed as to what preparations to buy. Usually men were selected for the school work who were not very busy and could conveniently spare so many allotted hours per week to this new "stunt." In order to have this properly done without must cost, the rotating rule was instituted. This would mean that each dentist, desiring to do so, would take his turn at the school in making examinations and recommendations.

When this work became general throughout the country, much time was spent and undoubtedly much good was accomplished, but a tremendous amount of evil was also done. A tooth brush drill has been made a part of each day's program of the child's work. He is given proper credit in his work if he shows that he has a tooth brush and uses it vigorously three or four times a day.

The writer believes that the pendulum has swung clear to the opposite side and lives in the hope that it will soon start back and will stop at some point where common sense should prevail. It is almost "heresy" to-day, to make or to offer to make any suggestions to school authorities, along dental lines. When another one of the little children is brought to my office by his parents, with most of his gums brushed away from his teeth or has pyorrhea definitely established in his jaws at the usual age of thirteen years, I feel that we should ask the parent some questions, although the parent is not to blame for the condition of his child's mouth or the vile use of a toothbrush. The first question I always ask the child is—"Do you like to see a good picture show?" "Yes." "Do you always use some good eye lotion with a stiff brush, to clean your eyes after seeing the show?" "No." "Do you like to hear the beautiful music over the radio?" "Yes." "Do you use an ear powder with a stiff brush on your ears after hearing the music?" "No!" "What would you expect to happen to your eyes or ears or even the skin on the back of your hands, if you treated these parts of your body like you do your teeth and gums?" At this point, the parent usually jumps into the conversation with a "holy horror expression"—"Why, Doctor! don't you believe in children brushing their teeth?" "Surely I do, when they are ill or need medical attention—otherwise, not until they are at least fifteen years of age—not before." At this time the parent has partially recovered his composure and I venture to ask if they have a fine cat or a dog that the family is proud of, if so, does she see that the cat or dog has his teeth vigorously brushed after each meal or oftener? If this would be done to the dog as is now being practised upon our youngsters, it also would have the diseases of the mouth, now common to our children.

Do we think more of our dogs than we do of our children? No! We have been taught these things and parents accept them wholly as the correct procedure of that which is taught in our schools. It is the earnest hope of the writer that parents will think and soon demand that the evil done to our children, by the use of the toothbrush—the toothbrush drills or brigades—SHALL STOP. And that my dividends will become smaller and smaller, until they reach a normal amount.

DATE OF ISSUE

This book must be returned within 3, 7, 14 days of its issue. A fine of ONE ANNA per day will be charged if the book is overdue.

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